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OSME

OSME

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- To develop productive working relationships with other governmental and non-governmental organisations with an interest in conservation and/or natural history in the region.

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Status of Sociable Plover *Chettusia gregaria* and White-tailed Plover *C. leucura* in Turkey and the Middle East

MAX KASPAREK

Summary The status of Sociable Plover *Chettusia gregaria* and White-tailed Plover *C. leucura* in the Middle East is reviewed, with all Turkish records given. Sociable Plover is a rare passage migrant in Turkey (21 known records since 1900), though formerly it was probably more common. It occurs particularly in the east, mainly April and September–October. It is an uncommon migrant through the east Mediterranean and western Arabia, and large wintering flocks are now known only in the western Negev (Israel) and in Eritrea (Ethiopia); wintering does not seem to be regular in Mesopotamia or Egypt, despite assertions in some literature. White-tailed Plover *C. leucura* was first found breeding in Turkey in the 1970s, at five proven or probable sites, but there have been fewer records since, despite increased observer activity. It breeds in Mesopotamia and parts of Iran and is an uncommon migrant and scarce winter visitor over much of the Middle East, but the Turkish population is too small and breeding too irregular to account for the migrants seen in Jordan, Israel, and Egypt, so perhaps some Iraqi birds undertake a westward migration. Some published records, of both species, may have involved confusion between them, and observers are advised to pay more attention to their distinction in the field.

SOCIABLE PLOVER *Chettusia gregaria* and White-tailed Plover *C. leucura* are two closely related, monotypic species of the subfamily Vanellinae. White-tailed Plover breeds in the west from the lowlands of the Euphrates and Tigris eastwards to the lowlands of the Syr-Dar'ya in central Kazakhstan (Tomkovich 1992). Sociable Plover breeds north of the White-tailed Plover's range, with its westernmost sites along the lower reaches of the Volga north of the Caspian, its easternmost in the lowlands of Lake Zaysan in eastern Kazakhstan. White-tailed Plover has been found breeding in Turkey, well outside its normal range, and Sociable Plover is known as a migrant in the country. This paper reviews the Turkish records of both species, giving precise information on their status which is compared with that in other Middle Eastern countries.

Unfortunately, identification of the two species in Turkey seems not always to have been beyond doubt, and there may have been some cases of confusion between them in the records given here. There are, for example, two Turkish July records of Sociable Plover, one of them in a potential breeding area of White-tailed Plover. Flock size can also sometimes suggest that confusion may have occurred: White-tailed Plovers usually migrate alone or in groups of less than five, whereas Sociable Plovers often migrate in flocks comprising some tens of birds (see below, and Glutz von Blotzheim *et al.* 1975). Thus, two flocks with a total of 38 White-tailed Plovers recorded in September near Van Gölü fit well into the migration season and route of Sociable Plover. Birdwatchers are therefore advised not to treat identification of these species too casually, and the confusion which attends a few

records demonstrates the continuing need for an established procedure to assess records of rare birds in Turkey (e.g. Kasparek 1990).

SOCIABLE PLOVER

Turkish records

The first records in Turkey were more than 150 years ago, by Dickson and Ross (1839), who repeatedly observed flocks in the surroundings of Erzurum between mid-September and mid-October and collected a specimen on 17 September. Curzon (1854), apparently on the basis of additional records, subsequently included '*Vanellus keptuschka*' (an old synonym of *C. gregaria*) in his list of the birds of Erzurum. All other Turkish records are shown in Table 1, demonstrating two clear migration periods: late March to late April and mid-September to late October, with one mid-November record. Most observations are in the eastern half of the country (Figure 1) and of up to five individuals, though larger groups of up to 30 have been seen, in both spring and autumn.

Table 1. Twentieth century records of Sociable Plover *Chettusia gregaria* in Turkey.

	No. of birds	Site	Source
24 Apr 1911	3	SE Urfa [1]	Weigold (1913)
17 Nov 1931	1 male	Eregli	von Jordans and Steinbacher (1948)
23 Sep 1934	1 male, 3 females	Niksar [2]	von Jordans and Steinbacher (1948)
15 Jul 1937	1	Ergani [3]	Vasvári, in Keve (1971)
22 Sep 1967	1	Çildir [4]	Vielliard (1968)
17 Apr 1968	1	Agri	OST (1972)
late Mar 1969	>30 [5]	Ceylanpinar	OST (1972)
23 Mar 1973	2	Urfa–Viransehir	OST (1975)
14 Sep 1973	5	Ardahan	OST (1975)
26 Apr 1974	1	Kocaçay delta	N. Koch and W. Fuchs
13 Sep 1979	1	Arhavi	Beaman (1986)
18 Sep 1979	11	Ardanuç	Beaman (1986)
2 Oct 1980	1	Trabzon	Beaman (1986)
3–7 Oct 1981	28	Sultan marshes	Kasparek (1985)
18 Sep 1982	2 imm.	Bafa Gölü	Kasparek (1988a)
23 Sep 1985	1	Erzurum plain	C. Bräuning
22–24 Oct 1985	1	Sultan marshes	van den Berk *et al.* (1986)
3 Apr 1988	2	Eber Gölü	van Winden *et al.* (1989)
5 Apr 1990	1	Çukurova	WIWO (1990)
25–30 Apr 1992	1	Kizilirmak delta	WIWO/OSME/DHKD

[1] *En route* to Urfa from Djullab (=Güllab, a creek SE of Urfa passing Harran).

[2] The locality was called 'Sebatos', apparently identical with Sebaste (=Niksar).

[3] Near Elazig. Vasvári (1938) called the site 'Targami'.

[4] Vielliard (1968) used the name 'Gölebert', an old name for Çildir.

[5] A flock of 30 and several others.

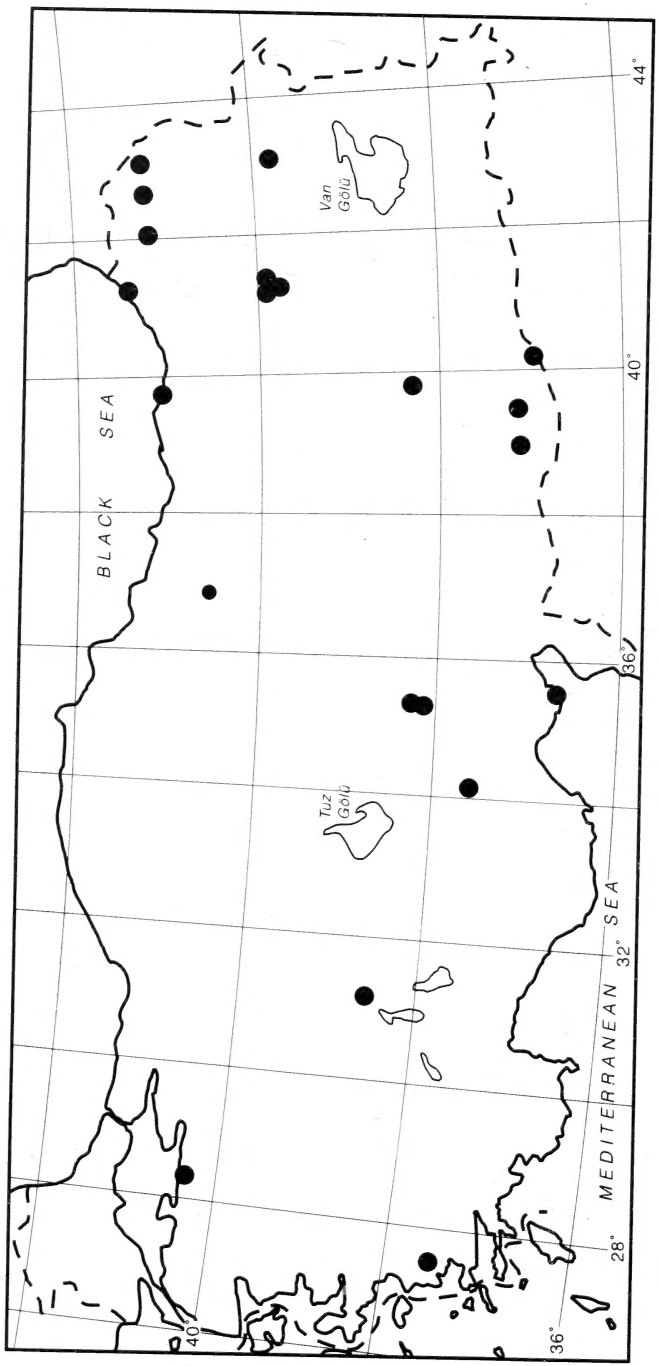

Figure 1. All records of Sociable Plover *Chettusia gregaria* known from Turkey. Each dot represents a record.

Status in the Middle East and Africa

The Sociable Plover is considered globally threatened (Collar and Andrew 1988; IUCN 1990) and has suffered considerably from the cultivation of its original steppe habitats, as it is scarcely capable of adapting to cultivated fields (Glutz von Blotzheim *et al.* 1975), contrasting in this respect with (e.g.) Lapwing *Vanellus vanellus*. Its range in Europe has therefore shrunk considerably within the last 150 years, and breeding areas in the south-east Ukraine and Crimea, for example, have been abandoned (Glutz von Blotzheim *et al.* 1975). The decline is also reflected by the numbers in the winter quarters: in Sudan Sociable Plover was formerly an uncommon winter visitor but has become rare (Nikolaus 1987). Wintering is known now to occur in north-west India and Pakistan, occasionally in the Arabian peninsula, and in Israel, north-east Ethiopia, and Sudan, rarely also in Iraq and Egypt (e.g. Glutz von Blotzheim *et al.* 1975, and see below). Cramp and Simmons (1983) reported occasional wintering in Transcaucasia.

Allouse (1953) and Meinertzhagen (1954) called the Sociable Plover a fairly common winter visitor to Iraq, an assessment repeated by many handbooks, though the only source for the statement is Ticehurst *et al.* (1922) who cited just two observers. One recorded Sociable Plovers 'in large flocks' from October to February and the other met the species in late February; two birds were collected in December. Ticehurst *et al.* (1926) added 'recorded from Feluja, Aqquar Quf and Sheik Said; earliest September 25', thus not specifying or emphasizing wintering. More recent field activities have not confirmed wintering: Chapman and McGeoch (1956) did not see the species in two winters, 1952–4, and Marchant (1963) did not mention it from the Baghdad area during 1959–62, although he discussed the winter status of 19 other wader species. Ctyroký (1987) doubted wintering in Iraq as he did not observe Sociable Plover during a four-year stay in the country, and Scott and Carp (1982) did not encounter it during four winter waterfowl counts between 1968 and 1979. It seems safe to assume, therefore, that Iraq never has been an important wintering area for Sociable Plover. Ticehurst's statement is based on only a few real winter observations, and most of his records may refer to late autumn or early spring migrants. In Armenia to the north, Ajrumjan (1987) classed the Sociable Plover as a migrant with records from the Araxes (Aras) valley and the Gegamski mountains.

There have been hardly any winter records in Egypt since 1930 (Goodman and Meininger 1989: Table 2), so it seems doubtful whether it was ever a 'not uncom-

Table 2. Seasonal distribution of records of Sociable Plover *Chettusia gregaria* in some Middle East countries. There are no January–February records for these countries. Egyptian records do not include any from before 1930.

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Source
Turkey	2	4			1		8	3	1		This study
Cyprus	1										Flint and Stewart (1992)
Syria							2	4	2		Kumerloeve (1968), Baumgart and Stephan (1986)
Lebanon								1			Kumerloeve (1962)
Egypt	2						2	3	6	2	Goodman and Meininger (1989)

mon' winter visitor there as Meinertzhagen (1930) described it, and this statement may just have been a generalization from some late autumn migrants and a few winter records. Recent observations in Israel, on the other hand, indicate that Sociable Plovers winter regularly in the western Negev in relatively large numbers: there are observations of 270 birds on 28 January 1979 (Hovel 1987) and 100–105 in winter 1984–5 (Andersen 1987), though Shirihai (in press) puts the number wintering annually at this site at 19–54.

On the Arabian peninsula, Sociable Plover seems to be a rare passage migrant which occasionally also winters. There appear to have been no records along the Gulf coast until the 1980s, and only a few since then, in eastern Saudi Arabia (Bundy *et al.* 1989), Bahrain (Nightingale and Overy 1987; Hirschfeld 1991), and the United Arab Emirates (Richardson 1990). In the western regions of Saudi Arabia it is an uncommon migrant and possibly a winter visitor (Jennings 1981). Around Riyadh it is rare and occurs only irregularly, mainly in March and November–December (Jennings 1981; Stagg 1987), and in the region of Al Jawf in the north-west of Saudi Arabia Green (1984) reported it to be an uncommon migrant from February to May and in August–September. In Oman it is a scarce winter visitor occurring November to February (OBRC 1990).

As a winter visitor to Sudan it was said by Hogg *et al.* (1984) to be fairly common inland but uncommon on the coast, though in fact there seem to be no records post-1950 (Nikolaus and Hamed 1984); Nikolaus (1987), however, was still prepared to describe it as 'formerly uncommon, now rare'. In Eritrea, numbers vary greatly, and birds are completely absent in some years, though the largest flock observed comprised 150 birds (Urban *et al.* 1986). There is a single old record from Somalia, in November in the north (Ash and Miskell 1983).

Sociable Plover is thus an uncommon migrant in the Middle East from the east Mediterranean to about 48°E and occurs only irregularly on the Arabian peninsula to the east of this longitude. Large wintering flocks have been seen only in the Negev and in Eritrea.

Turkish records are of single individuals and small flocks of up to 30 birds, and a similar situation is found in other Middle East countries, though Jennings *et al.* (1988) saw a remarkable group of 45 in extreme northern Saudi Arabia in March. Other maximum group sizes of migrants are 12 in Syria (Kumerloeve 1968), 24 in Egypt (Goodman and Meininger 1989), 12 in Bahrain (Hirschfeld 1991), and no more than ten in other Middle East countries. This accords with observations in other parts of the species' range (Glutz von Blotzheim *et al.* 1975) and emphasizes that the larger numbers observed in the western Negev indicate genuine wintering.

Former breeding in the Ukraine would explain the apparent frequency of nineteenth century records in Turkey (see above) and the subsequent decline, but despite this loss of its westernmost breeding areas the Sociable Plover is still occurring as a migrant in the country, and wintering numbers in the Negev suggest that many more must pass through Turkey on migration than are actually seen. If not due simply to overflying, this might be explained by the fact that on migration the species prefers sandy plains covered with short grass, dry meadows, fallow land,

and cultivated fields (Voous 1960), habitats which are extensive and thus not well covered by birdwatchers. Furthermore, most birds migrate through the eastern part of the country which is rarely visited by birdwatchers during the Sociable Plover's migration periods. A similar situation exists with the Demoiselle Crane *Anthropoides virgo*, which prefers similar habitats and which is only rarely seen on migration, although it must pass in large numbers (Kasparek 1988b). Observers are therefore urged to survey these habitats in the migration seasons more carefully.

WHITE-TAILED PLOVER

Turkish records

The White-tailed Plover reaches the western limit of its breeding range in Turkey, where it is isolated from the nearest main breeding area, in Mesopotamia (Figures 2–3). Breeding in Turkey has been proved in the Göksu delta and in the former Yarma wetlands, and the behaviour of birds in the Hotamis marshes and the Çukurova deltas (agitated behaviour, defence of territories, etc.) indicates probable breeding there. The presence of birds in suitable nesting habitat during the breeding season in the Eregli marshes suggests a fifth breeding locality, and presence during the breeding season at the Kizilirmak delta, at Amik Gölü and Van Gölü, at Birecik, and in the Aras (Araxes) lowlands (Aralik area) may be taken as a slight indication of further breeding localities.

The following compilation of all known records lists them area by area, from west to east (see also Figure 2).

Plate 1. White-tailed Plover *Chettusia leucura*, Eilat (Israel), April 1980. (*Peter H. Barthel*)

Manyas Gölü. One was photographed on 20 October 1982 (F. de Roder pers. comm.; the date was erroneously given as 21–22 October in Martins 1989).

Kizilirmak delta. Three at Liman Gölü at the northern tip of the delta on 11 May 1977 (Dijksen and Kasparek 1985).

Hotamis marshes. Harbard *et al.* (1976, and OST 1978) observed two individuals on 26 August 1974 and three the following day. In the following year, R. R. Lovegrove, R. F. Porter, and I. Willis (OST 1978 and unpubl. rep.) found a pair and another single bird in suitable nesting habitat near Sazlipinar on the northern shore of the marshes on 3 June; one bird was agitated at the observers' presence, and next day only one was seen. Single birds were observed on 10 May 1977 (Beaman 1986) and 21 May 1984 (Martins 1989). In 1985, 13 were seen on 14 June (Martins 1989), two on 24–25 June (P. Bison, P. Gnodde, and J. van der Laan), and three on 6 July (S. Skov and K. L. Hansen); breeding was assumed due to the fact that the birds were giving alarm-calls. At Küçük Aslama (25 km south-west of Hotamis) a

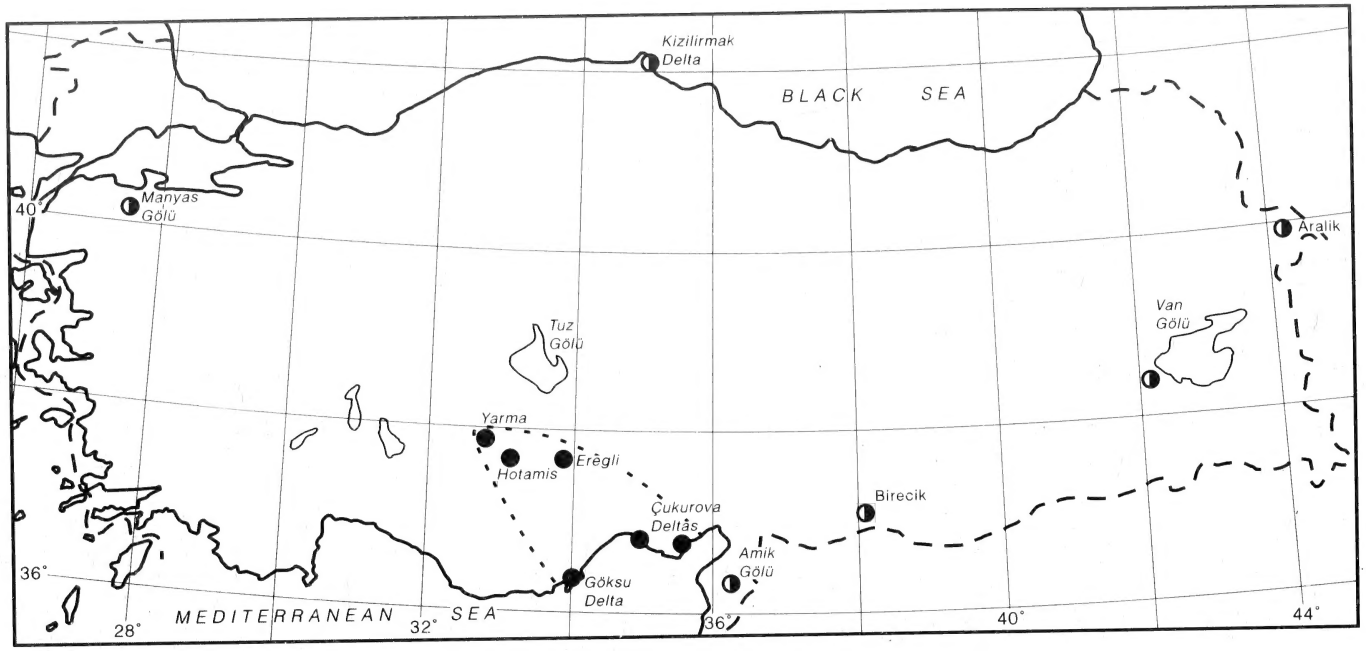

Figure 2. Distribution of White-tailed Plover *Chettusia leucura* in Turkey (from Kasparek 1992). Dots are proven or presumed breeding localities; half-filled dots are sites of possible breeding or of obvious passage records.

calling bird flew over on 30 May 1986 (Martins 1989; R. Schenk unpubl. rep.).

Yarma wetlands. Three pairs (one seen mating) and a single very agitated bird were recorded on 3 June 1971 (Lehmann 1971). The area was described as steppe on the edges of a freshwater lake north-east of Konya (also in Kumerloeve 1971), but as there is no lake north-east of Konya, I am convinced that the records refer to the Yarma wetlands south-east of Konya. This would also fit well with the records by K. Warncke a few days later: on 9 June he observed 5–6 pairs in the Yarma wetlands and found two nests which contained two and four eggs (Warncke c. 1972; OST 1975); on 11 June he noted at least nine pairs, and the nest formerly with two eggs was found to contain three; by 23 July the site had dried out and the birds were scattered around the area.

Eregli marshes. E. Hable, E. Bezzel, N. Koch *et al.* (Weber 1981 and unpubl. rep.) observed at least six individuals (up to four together) on 8 May 1979 and four on 11 May. An observation by M. van Beirs and D. Colin (unpubl. rep.) which was attributed by them to Sociable Plover (two on 17 July 1982) apparently refers to White-tailed Plover. R. Jürgens *et al.* (unpubl. rep.) saw one in inundated fields lying between Düden village and Karaman on 2 May 1983.

Plate 2. White-tailed Plover *Chettusia leucura*, Eilat (Israel), April 1980. (*Peter H. Barthel*)

Göksu delta. White-tailed Plover was first observed in the delta in 1970, when four adults were seen on 30 April (OST 1975). In the following year Lehmann (1971) discovered a pair with a clutch of three eggs on 27 May; two days later he found another nest, and on 27 July a pair with a recently fledged juvenile was observed (OST 1975). In 1973, G. Easy *et al.* (OST 1975 and unpubl. rep.) saw 15 birds on 20 September, six on 22nd, and one on 24th. Birds were seen in the delta several times subsequently, although no indication of breeding was found: two on 21–22 May 1975 (OST 1978), at least three on 8–9 May (S. Gysel, N. Koch, *et al.* unpubl. rep.), two on 11 May 1978 (D. Holman unpubl. rep.), and singles on 7 April 1982 (Hüni 1982), 7 April 1985 (H. Langbehn, R. Kellner, H. Pieper, *et al.* unpubl. rep.), and 18 April 1985 (Martins 1989). There were apparently no observations from 1988 to 1991 despite an extremely high level of observer activity (pers. data and V. van den Berk pers. comm.).

Çukurova deltas. On 3 May 1970 a pair which was thought to be breeding was seen near Agyatan Gölü (Kumerloeve 1971). One pair and three singles, which behaved as if breeding, were observed in inundated areas of the Tarsus (Berdan) river on 1 June 1971 (Lehmann 1971). U. von Wicht and G. Knötzsch (unpubl. rep.) observed two pairs near Tuzla on 22 April 1973, and van der Have *et al.* (1988) noted two birds in the salt marshes west of Agyatan Gölü on 16 May 1987.

Amik Gölü. A pair was found in a Jerusalem bird collection (Dalman collection) which had been shot by Aharoni at Amik Gölü on 17 June 1910 (Kumerloeve 1966; Kummerlöwe 1969). This represents the first Turkish record.

Euphrates near Birecik. Eight individuals were seen between Birecik and Halfeti on 5–7 April

1973 (OST 1975), and G. Kirwan (pers. comm.) saw an adult in display-flight at Birecik on 18 May 1992.

Van Gölü. Two were seen near Van on 13 May 1973 (OST 1975). 38 individuals were reported flying south over Nemrut mountain near Tatvan in two flocks on 27 September 1986 (Mycock 1987; Martins 1989); there is some possibility that this record represents confusion with Sociable Plover (see above).

Aralik area. R. Jürgens (unpubl. rep.) recorded two between Igdir and Aralik on 16 June 1986.

Thus, most of the Turkish observations of White-tailed Plover have been at proved or possible breeding places. Only the April observation on the Euphrates and the October observation from Manyas Gölü clearly refer to migrants. The earliest spring date in Turkey is 5 April, and other observations have been made later in that month, though most birds arrive in early May.

Breeding in Turkey has been recorded only irregularly but it is appropriate to consider whether this simply reflects irregular birdwatching activity. Observer activity in the Mediterranean river deltas has increased considerably in recent years, but despite this there are only a very few records of White-tailed Plover from that period, although breeding had been proved (Göksu delta) or assumed (Çukurova) in the 1970s when these areas were visited much less than today. White-tailed Plover was not seen in the Eregli marshes during a survey of the area in 1987–9 (Kiliç and Kasparek 1990), and the wetlands at Yarma have now been drained and the area put to agricultural use. There might still be suitable breeding habitat around the Hotamis marshes, but the lake has largely dried up due to the use of its waters for irrigation, and no White-tailed Plovers were found during a survey in late April and mid-May 1991 (G. Kirwan pers. comm.). The substantial increase in birdwatching in Turkey during the last 15 years thus has not brought about a corresponding increase in the number of records of White-tailed Plover, nor has any new breeding locality been discovered.

A westward expansion of the breeding range was suggested by Glutz von Blotzheim *et al.* (1975), Dean *et al.* (1977), and others, but the Turkish situation indicates that a continuing spread cannot be confirmed. Localities which were occupied in Turkey in the 1970s were abandoned in the 1980s, even though many apparently excellent potential breeding areas remain, and any change taking place

Table 3. Records of White-tailed Plover *Chettusia leucura* in Turkey by area and by year (a record at Van in 1986 is excluded: see text). There is only one pre-1970 record (Amik Gölü: see text). Records for Cyprus (C. Bennett *in litt.*) are given for comparison. Figures are minimum numbers of birds.

	1970	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Hotamis					3	3		1							1	13	1						
Yarma		18																					
Eregli										6			2	1									
Göksu	4	5		15		2			3				1			1							
Çukurova	2	5		4														2					
Other				10				3					1				4						1
Cyprus	3									2					2				4	1	6	1	

thus seems to consist of long-term fluctuations at the edge of the breeding range rather than a steady westward expansion. Although there have been observations of birds in many years since 1970, no one area is known to have had a continuous presence (Table 3). There were only two years with no records in the 1970s, but four in the 1980s, and only a single bird has been seen since 1987. There is scant indication of any periodic influx.

Status in the Middle East and Africa

Breeding in Iraq is confined to the lower Euphrates and Tigris basin (Figure 3), where birds have been seen on territory from mid-March (Ctyroký 1992). The data presented in Figure 3 include previously unpublished records as follows. During 19 March to 2 April 1965 E. Herrlinger, M. von Tschirnhaus, *et al.* (unpubl. rep.) found 15 White-tailed Plovers west of Falluya, 40 near Salman Pak (Ctesifon), six between Ali al-Garbi and Qalat Salih, one north of Qurna, seven south of Nasiriya, two south of Diwaniya, four between Diwaniya and Hilla, and 15 north of Bahriz

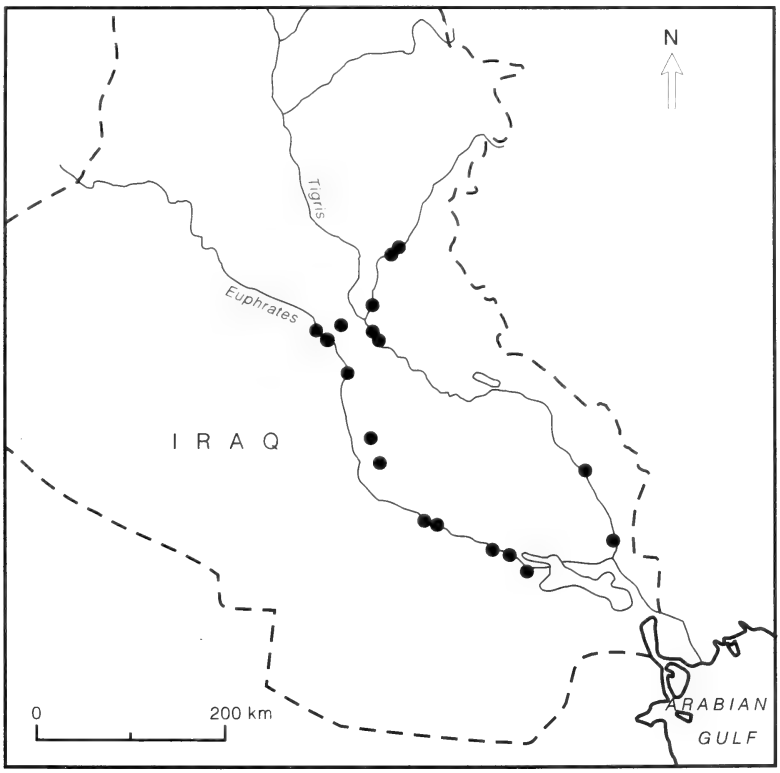

Figure 3. Distribution of White-tailed Plover *Chettusia leucura* in Iraq; all sites of apparent breeding are shown. Data from E. Herrlinger, M. von Tschirnhaus, and T. Stadtlander (see text), Ticehurst *et al.* (1922), Allouse (1957), Sage (1960), and Ctyroký (1987).

in the environs of Baquba. While on a boat tour down the Euphrates on 19–28 March 1989 T. Stadtlander (unpubl. rep.) observed one pair below Al Falluya barrage no. 1, five pairs above Al Falluya barrage no. 5 and c. 20 pairs below it near Mishkhab, c. 30 pairs below Jarab near As Samawah, c. 20 pairs below As Samawah, c. 8 pairs above Al Batha, c. 50 pairs at a bridge west of An Nasiriyah, and c. 30 pairs between An Nasiriyah and Suq ash Shuyukh.

The distribution in Iran extends, according to Scott *et al.* (1975), along the Arabian Gulf and South Caspian lowlands, and also includes the swamps of Bafq in the interior and Seistan in the east. On the eastern side of the Caspian Sea the species is described as common (e.g. Grekov 1960), whereas it is only a local breeder on the western shore, as in the Kura lowlands of Azerbaijan (see Vinogradov 1963). There is a single breeding record, in 1992, from the Arabian peninsula, involving two pairs at Al Khobar on the Gulf coast of Saudi Arabia (G. Ramsay, *Orn. Soc. Middle East Bull.* 29: 43). At Azraq in Jordan, White-tailed Plovers have been seen on several occasions and the observations have included family parties and birds giving alarm-calls—though breeding still needs confirmation (Andrews 1991).

The main wintering area extends from north-west India across Pakistan to south-east Iraq, but a small number of birds migrate as far as Africa where Sudan is an important wintering area (Glutz von Blotzheim *et al.* 1975). It was recently described from Sudan as uncommon from September or October to March, occurring in parties of up to 25 birds (Hogg *et al.* 1984; Nikolaus 1987). Wintering in Egypt is only occasional, and birds are rare there on passage, occurring mainly from early September to early November and from late February to late March (Goodman and Meininger 1989). Also in Israel it is a quite rare passage migrant and rare winterer, with seasonal maxima at Eilat of 20 in spring and 30 in autumn (Shirihai in press). The White-tailed Plover occurs in all parts of the Arabian peninsula as a rare to uncommon migrant and scarce winterer. Jennings (1981), for example, reported it to be an uncommon passage migrant in all parts of Saudi Arabia, and it is an irregular spring and autumn migrant in the Riyadh region (Stagg 1987) and a scarce visitor in all months (though chiefly a migrant) from late August to May in the Gulf states (Bundy *et al.* 1989; Richardson 1990).

Thus White-tailed Plovers evidently cross Arabia on a broad front, but the origin of migrants in Israel and Egypt is unclear, with breeding in Turkey being plainly too infrequent and too irregular for this population to be the source of all such birds. They may thus stem from Iraq, where the population is partially migratory (Ctyroký 1992), but such birds would have to leave Iraq on a westerly heading and subsequently change direction to the south on leaving Israel or Egypt in order to reach the winter quarters in Sudan. The adaptive value of this behaviour would be unclear, as the Arabian records show that deserts are no barrier for migrants, so it may be that the birds' true origin in fact lies to the north of the eastern Mediterranean in some undiscovered or larger-than-presently-known population.

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Counts of Lappet-faced Vultures *Torgos tracheliotus* at Mahazat As Said (Saudi Arabia), with a discussion of the species' taxonomy

CHRISTOPH WEIGELDT and HOLGER SCHULZ

Summary Lappet-faced Vulture *Torgos tracheliotus* is now known to be quite numerous in central Arabia. Transect counts indicated minima of 69–100 present in *c.* 300 km² of the Mahazat As Said reserve in west-central Saudi Arabia between 1 September and 9 October 1991, and a group of 36 birds was seen, the largest concentration ever recorded in Arabia. Ten nests were found, 5 m to 7·18 km apart, in *Maerua* trees. The birds are described, and the species' taxonomy in the region is discussed. Saudi Arabian birds have very small or no lappets and appear to be *negevensis*, a race formerly believed restricted to the Negev region of Israel.

THE STATUS of the Lappet-faced Vulture *Torgos tracheliotus* in the Middle East is still not well known. A small population was discovered in the Negev region of Israel in 1945 (Bruun 1981; Bruun *et al.* 1981; Leshem 1984; Paz 1987), though this is now practically extinct in the wild. The first breeding in Arabia was recorded in 1947 south-east of Riyadh (Jennings 1982), and since then many breeding locations have been confirmed in the peninsula, mainly in the centre and

Plate 1. Lappet-faced Vultures *Torgos tracheliotus* in *Maerua* tree, Mahazat As Said (Saudi Arabia). A group of Arabian oryx *Oryx leucoryx* shelters below the tree. (*X. Eichacker*)

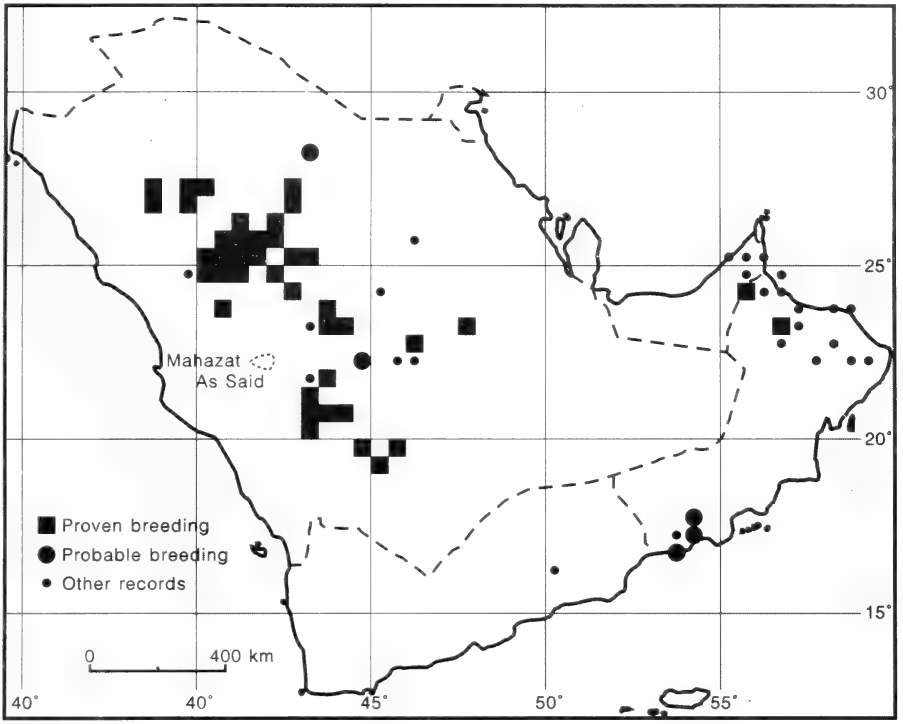

Figure 1. Breeding distribution of Lappet-faced Vulture *Torgos tracheliotus* in Arabia. Data are from the *Atlas of the Breeding Birds of Arabia* (in prep., per M. C. Jennings), mapped on the basis of half-degree squares. Records from the vicinity of Mahazat As Said are not included.

south-east (Jennings and Fryer 1984; Jennings 1989a, 1990a: Figure 1).

Soon after the creation of the Mahazat As Said reserve in west-central Saudi Arabia in 1989 Lappet-faced Vultures were repeatedly recorded within it and occupied nests were found. A census was therefore carried out during the non-breeding season in 1991 and an unexpectedly high number of birds was found, constituting the largest concentration of Lappet-faced Vultures known from Arabia. The opportunity was also taken to compile descriptions of the birds' morphology with a view to elucidating their taxonomic position.

STUDY AREA

The Mahazat As Said reserve, created by the National Commission for Wildlife Conservation and Development (NCWCD, Riyadh) and managed by the National Wildlife Research Center (NWRC, Taif), is located in the arid plains of west-central Arabia, 170 km north-east of Taif; the centre of the reserve lies at about 22°15′N 41°50′E. The whole area of 2,190 km^2 has been fenced to prevent the entry of bedouins and their livestock (camels, sheep, and goats).

The average altitude of the reserve is approximately 1000 m and the morphology is characterized by sandy plains with a few shallow wadis and two small jabals. In 1990 60 mm of rainfall was recorded. The main vegetation consists of a very few small *Acacia tortilis* trees and bushes, *Salsola spinescens* and *Hammada elegans* bushes, and the grasses *Panicum turgidum* and *Stipagrostis plumosa*, with *Maerua crassifolia* trees growing in relatively high density only in the east of the reserve (Launay 1990). The actual study area comprised about 300 km² of the eastern part of Mahazat As Said, where *Maerua* were the only large trees and probably therefore the only tree species suitable for Lappet-faced Vultures.

Plate 2. Part of a group of 36 Lappet-faced Vultures *Torgos tracheliotus* (and a Griffon Vulture *Gyps fulvus*) near a dead camel, Mahazat As Said (Saudi Arabia), September 1991. (*C. Weigeldt*)

METHODS

Observations were carried out between 7 August and 10 October 1991. A census transect, 106 km long and covering almost the entire study area, was driven by car on seven days, starting at about sunrise and taking 3–4 hours. Only birds sitting in trees and on the ground were counted, though birds on the ground were difficult to see at a distance and some may have been overlooked. To avoid double counting, flying birds were not included. The data resulting from each census consequently represent a minimum number of vultures present in the study area. Positions of *Maerua* trees and vulture nests were located with a Loran C navigator and plotted on a map.

RESULTS

Roost and nest sites

More than 200 *Maerua* trees, approximately 3–5·5 m in height, are located within the study area, giving an overall density of roughly 0·7 per km²—though the den-

sity is highly variable, ranging from quite treeless parts to areas with up to 13 trees per km^2. *Maerua* trees were used by the vultures for resting during the day and probably also for roosting at night.

Ten large nests, two of them destroyed, were found in the crowns of *Maerua* trees, all of which were about 4·5 m high. Two nest-trees were located at a distance of only 5 m from each other, though the average nearest-neighbour distance for all nest sites (excluding these two very close nests) was 3·96±SD2·39 km, ranging from 0·62 to 7·18 km. All trees with nests in the crown showed signs of use by vultures, such as feathers, bones, etc., in the nest as well as in the tree and on the ground below, and occasionally Lappet-faced Vultures were seen sitting on the nests, though it was not possible to assess how many had actually been occupied during the previous breeding season. In Africa, pairs can each have up to 3 nests, using them in rotation (Brown *et al.* 1982), so nest counts can give an inflated picture of the number of pairs present.

Transect counts

Surprisingly high total numbers of Lappet-faced Vultures were recorded in the study area (Table 1), with minimum numbers of 69–100 birds present. Outside the actual study area very few vultures were observed, although many surveys were driven through the entire Mahazat As Said reserve. On trees outside Mahazat As Said only a few vultures were noted, these being seen during drives along the perimeter fence. Single Lappet-faced Vultures were seen, however, on several occasions during the census period at distances of up to 200 km from the study area.

Table 1. Results of transect counts of vultures in the Mahazat As Said reserve (Saudi Arabia), September–October 1991 (see text).

	Lappet-faced Vulture *Torgos tracheliotus*	Egyptian Vulture *Neophron percnopterus*	Griffon Vulture *Gyps fulvus*
1 Sep	100	7	0
14 Sep	84	5	0
18 Sep	69	12	0
19 Sep	91	8	1
24 Sep	69	13	0
2 Oct	76	15	0
9 Oct	81	12	1

In most cases Lappet-faced Vultures were seen alone or in pairs. Occasionally small groups of 3–5 birds were observed, most of them perching in the crowns of *Maerua* trees, but some were also sitting on the ground. On three occasions large groups were discovered:

- On 7 August at 06.00–09.00 hrs a group of 23 Lappet-faced Vultures, 4 Egyptian Vultures *Neophron percnopterus*, and 1 Griffon Vulture *Gyps fulvus* was found; the birds were sitting on the ground and in the top of four *Maerua* trees, in an area about 100 m across.
- On 20 August at 07.00–09.00 hrs a group of 15 Lappet-faced Vultures, 2 Egyp-

Plate 3. Lappet-faced Vulture *Torgos tracheliotus*, Mahazat As Said (Saudi Arabia). Whitish bar on underwing rather faint. (*X. Eichacker*)

tian Vultures, and 1 Griffon Vulture was seen at the same site. That evening, at 18.40 hrs, 27 Lappet-faced Vultures (15 again sitting in the 4 *Maerua* trees and 12 on the ground), 8 Egyptian Vultures, and 1 Griffon Vulture were at the site.

- On 19 September at 09.00 hrs a group of 36 Lappet-faced Vultures, 8 Egyptian Vultures, and 1 Griffon Vulture was observed just outside the eastern border of the reserve; they were sitting on the ground and on a mound close to an old camel carcass (these birds are included in the totals for the transect count on that day: Table 1).

The majority of Lappet-faced Vultures observed in Mahazat As Said probably roosted regularly in the study area. The birds usually left the study area and the reserve between 09.15 and 11.30 hrs, apparently to forage, and returned between 14.30 and 16.30 hrs each day, depending on the development of thermals. However, when midday searches were made of the region surrounding Mahazat As Said and at garbage dumps near the neighbouring villages of Al Khurma and Al Muwayh, no vultures were found.

Description of birds

The following description of Lappet-faced Vultures in Mahazat As Said is compiled from field observations and close-up photographs. During the census it was not possible to distinguish juveniles from adults, but features relating specifically to adults are taken from photographs at other times of year of birds at the nest

with eggs or chicks. The description of the head and bill refers only to adults.

Size. Appeared to be significantly larger and heavier than Griffon Vulture.

Head. Naked or covered on top and behind eyes with short silvery-grey down; skin greyish or with pink shade on cheeks, and below and around eyes; nape pink or, depending on sunlight, sometimes appearing to be red (probably depending also on the bird's state of agitation); skin around base of bill violet. Lappets (fleshy folds of skin on the side and rear of the head and neck) very small or completely absent.

Bill. Dark brown or black, with lower edge of upper mandible or basal part of lower edge of upper mandible and hook on tip very light brown.

Back. Dark brown.

Breast. Streaking brownish-white; sometimes very well developed but usually not so, in either adult or young birds.

Thighs. Feathering variable in colour, even between known adults; often dark or light brown, with lower or upper parts being brighter (very light brown or grey-white);

Plate 4. Breeding pair of Lappet-faced Vultures *Torgos tracheliotus* on their nest in a *Maerua* tree, Mahazat As Said (Saudi Arabia). (*X. Eichacker*)

Plate 5. Lappet-faced Vulture *Torgos tracheliotus* on *Maerua* tree, Mahazat As Said (Saudi Arabia). (*X. Eichacker*)

rarely whitish or very light brown, with only a narrow band of darker brown just above tibiotarsal joint.

Underwing. Usually dark brown, with only a very faint light brown bar on the coverts, though in a few birds the bar is white and well developed.

DISCUSSION

Status in Mahazat As Said and Arabia

The number of up to 100 Lappet-faced Vultures present in the 300 km^2 study area represents the highest density recorded in Arabia up to 1991. Jennings (1990b) recorded 22 birds at a dead sheep north of Hanakiyah in central Saudi Arabia, but flocks of up to 36 birds found in the present study were larger than ever seen before in the peninsula, and approach those found in some parts of the species' African range. According to Pennycuick (1976), in East Africa, where 'Lappet-faced Vultures can be seen anywhere in suitable habitats', it is unusual to see more than eight together; in some subdesert areas of Africa, however, 40–50 can occur together (Brown *et al.* 1982). Association of Lappet-faced Vultures with other vulture species during resting, as observed in Mahazat As Said, has been described as common in other countries of the species' range (Cramp and Simmons 1980). Numbers at Mahazat As Said were even greater in 1992, when counts using methodology closely similar to the present study found 142 birds on 8 September and 162 on 12 October (Newton and Shobrak in press).

Jennings and Fryer (1984) considered that the increased number of Lappet-faced Vulture records in Saudi Arabia probably does not reflect an actual increase in numbers of birds, but merely the increased activity of observers. On the other hand, M. C. Jennings (*in litt.*) has made the point that numbers may have risen recently due to the higher numbers of livestock now in central Arabia. In the case of Mahazat As Said, however, the large total number of vultures and the formation of unusually large groups may well be linked to the protection from disturbance, as well as to the fact that the study area offers an exceptionally high density of suitable trees. Jennings and Fryer (1984) estimated the total population of the Lappet-faced Vulture in Saudi Arabia to be not more than about 100 birds, this conclusion being based on scattered observations from several other nesting locations in central Saudi Arabia. The results presented above indicate clearly, however, that the population in the Kingdom is significantly larger than previously believed.

The total of only ten nests found, if compared with the number of birds observed, indicates that few of the vultures observed were breeding birds from Mahazat As Said or their young, even considering that attainment of maturity in the Lappet-faced Vulture requires 4–5 years (Cramp and Simmons 1980). Distances between nests in Mahazat As Said were almost identical with those of a dense population of Lappet-faced Vultures in Zimbabwe (Anthony 1976), where the average distance was 3·2 km, ranging from 0·7 to 5·9 km (64 nests, 18 of which were occupied). This indicates that, although no conclusions can be drawn at present on the actual nesting density, the breeding population in Mahazat As Said is probably rather high. Further work should be carried out during the breeding season

Plate 6. Lappet-faced Vulture *Torgos tracheliotus*, Mahazat As Said (Saudi Arabia). Underwing markings are prominent, though perhaps due to moult. (*B. Pambour*)

in order to identify the number of breeding pairs.

Most of the non-breeding population of Mahazat As Said thus originates outside the area, but from where is unknown. Neither is it certain whether a breeding population existed at all in this area before the reserve was created, though, according to a local bedouin now working as a ranger in the reserve, the number of Lappet-faced Vultures present before the area was fenced was much lower than now. He also mentioned that in the past vultures were shot by local people, an observation confirmed by Jennings (1989a, b) who found single Lappet-faced Vultures shot on nests north of Medina and on the Al Arid escarpment.

Two major resources are necessary for the establishment of a population of Lappet-faced Vultures: undisturbed trees for nesting, roosting, and resting, and carcasses for feeding. The fact that Mahazat As Said is fenced and strictly protected provides safe nesting sites, and the importance of trees is shown by the fact that birds were observed only in those parts of the reserve where large trees, in this case *Maerua*, were growing at relatively high density. On the other hand, food resources are virtually absent inside the protected area, as there are no domestic livestock and only low numbers of Arabian oryx *Oryx leucoryx* and Arabian gazelle *Gazella gazella* have been released. Carcasses of domestic animals are, however, abundant outside the reserve, where the area is heavily grazed. Lappet-faced Vultures are known elsewhere in their range to carry out long-distance foraging flights, with birds of the Negev population being recorded up to 150 km from their breeding site (Mendelssohn 1971). Both key resources are thus available within the vicinity of Mahazat As Said, and this probably accounts for the concentration of vultures in the area.

Taxonomic status

The relationships of the various populations of Lappet-faced Vulture are not clear, as no quantitative data are available which would permit an accurate comparison of morphological features. However, qualitative observations and analysis of the literature have allowed the development of a hypothesis on the species' taxonomy.

Bruun (1981) and Bruun *et al.* (1981) described a separate subspecies from the

Negev (*negevensis*), distinct from two subspecies of the African population (nominate *tracheliotus* in southern and East Africa and *nubicus* in north-east Africa). Cramp and Simmons (1980) and Brown *et al.* (1982), in contrast, do not recognize any races. Birds from Arabia have been described as possibly intermediate between *nubicus* and *negevensis* (Jennings and Fryer 1984), but as only one pair of the Negev population now survives in the wild (H. Mendelssohn *in litt.*), with a few individuals in the Tel Aviv Research Zoo, it is of major importance to establish the true taxonomic position of the Arabian population.

Records from Arabia (Jennings and Fryer 1984; ABBA data, Figure 1) demonstrate that there is scarcely any geographical separation between Lappet-faced Vultures from the Negev and those from the Arabian peninsula, as northernmost Arabian records, in the north of Saudi Arabia, are not more than 300–400 km from the Negev population. In Africa young marked Lappet-faced Vultures have been sighted up to 300 km from their natal site after dispersal (Brown *et al.* 1982), so exchange of individuals between the Negev and Arabian populations has probably been regular, indicating that these populations are unlikely to comprise different subspecies.

Morphological characters used by Bruun (1981), Bruun *et al.* (1981), and Leshem (1984) for the identification of subspecies in the Lappet-faced Vulture are the size of the lappets, the coloration of the head, colour of the thighs, and the degree of development of a white bar on the underwing. Observations made during this study showed that in the Arabian population most of these characteristics are highly variable. Descriptions of birds from the Negev, on the other hand, suggest a much more constant morphology, though published photographs show that they too do in fact vary considerably. The thighs are described as brown or dark brown (Bruun *et al.* 1981, for adults; Leshem 1984, for both adults and juveniles), but photographs of adult birds (Mendelssohn and Leshem 1983; Mendelssohn and Marder 1989) show very light brown and partially whitish thighs—and Shirihai (1987) describes adults' thighs as creamish-brown or pale creamy-brown. It appears that the initial description and classification of *negevensis* was based on only a very few birds, and that the variability of the characters employed has not been considered in sufficient detail. Comparison of birds observed in Saudi Arabia with those described from the Negev reveals, in most cases, striking similarities; only a few birds observed in Arabia had characteristics more similar to *nubicus*, such as a white bar on the underwing, and, given the high degree of variability found in Arabian birds (apparently also in those from the Negev), it has to be concluded that the two populations are not morphologically distinct. The suggestion of Jennings and Fryer (1984) that Lappet-faced Vultures in Saudi Arabia are smaller than Griffon Vultures, and thus considerably smaller than *negevensis*, has not been confirmed by our observations. As a consequence, the Saudi Arabian population of the Lappet-faced Vulture has to be assumed to belong to *negevensis* on the basis of morphology as well as on a presumption of gene flow. This indicates that the subspecies is not close to extinction as was previously believed.

For similar reasons it seems questionable whether *negevensis* should be considered subspecifically distinct from the African forms, *nubicus* and nominate

tracheliotus, though there is no doubt that morphological characteristics, such as colour of head and size of lappets, differ more between the Arabian and African populations than between those of Arabia and the Negev. However, the geographical separation of African and Arabian birds is perhaps not sufficient to avoid regular exchanges between them, and future more detailed studies may yet confirm that the key morphological characteristics of Lappet-faced Vulture change clinally from north to south over the whole range of the species, indicating that monotypic treatment is appropriate.

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The House Crow *Corvus splendens* in Aden (Yemen) and an attempt at its control

MICHAEL C. JENNINGS

Summary The House Crow *Corvus splendens* has been known from Aden (Yemen) since at least the late 1940s. By the early 1980s the population had built up to an extremely high density and the authorities sought the advice of the UN Development Programme on what might be done to limit the nuisance caused by the crows. A UNDP study in 1984 identified several real and potential problems caused by the crows (health, agricultural, etc.) and suggested solutions. In 1986 the Aden Governorate instigated a control programme using poisoned baits which, by 1989, had exterminated nearly a quarter of a million crows. However, the measures were of limited effectiveness because of the meagre financial resources of the Aden Governorate and the fact that adjacent governorates had no control programmes.

MAINLY during the last 20 years the House Crow *Corvus splendens* has established itself as a breeding bird in most of the large coastal towns of Arabia, including Eilat, Yanbu, Jedda, Hodeidah, Aden, Muscat, Dubai, Kuwait, and on Bahrain (e.g. Pilcher 1986). It has become a pest species at several places in the Indian Ocean region, but in Arabia this has happened only in Aden and its immediate hinterland where it has been present since at least the late 1940s (Meinertzhagen 1954; Gallagher 1989). It probably arrived there through shipborne passage, as it has done at other places around the Indian Ocean, and is now common and a source of nuisance in the Aden, Lahej, and Abiyan areas. It also occurs in small numbers in the coastal towns at Shagra and Mukalla to the east, and there is a single record from Ghaydah near the Oman border. The House Crow is not yet a cause for concern outside the Aden–Lahej–Abiyan area, although the Fan-tailed Raven *Corvus rhipidurus* is a considerable nuisance at fish-drying centres in the eastern half of the country and is clearly confused with the House Crow by both officials and local people.

For many years the numbers of House Crows in southern Yemen remained generally small, and the birds caused no significant problems, but by the early 1980s an extremely high density had been reached in Aden and nearby. Concern was raised about the population increase, and it was at this time that problems associated with the large numbers were first identified. It is not clear why the species should have increased so dramatically here when a similar population explosion has not occurred at other coastal urban places in Arabia where birds are present. It is thought that the ready availability of human food waste and rubbish, fish-drying, and market gardening activities all contributed to providing optimum conditions for the species to survive and multiply. It is also thought that the banning of goats from the Aden municipal area since 1983 has played a part in the increase of crows because these animals competed directly with them for food scraps (Ash 1984a). Although not yet experienced elsewhere in Arabia, the situation in Aden

does, in many respects, mirror that elsewhere in the Indian Ocean—regions such as East Africa (Ryall and Reid 1987), Mauritius (Feare and Mungroo 1989), and the Maldives (Ash 1984b), where population explosions of House Crows have prompted consideration of control measures.

THE ASH REPORT

The case against the House Crow in Aden has been summarized by Ash (1984a) who visited the area in 1984 under the sponsorship of the United Nations Development Programme to examine the situation and make recommendations. He identified the main problems resulting from the large number of crows as follows.

- Environmental pollution through the deposition of faeces and food waste in public areas, particularly at crow roost sites. This presented an unpleasant cleaning task of footpaths, park benches, cars, etc. In addition, the continuous calling from before dawn to dusk represented unacceptable noise pollution, inconvenience, and nuisance. Other specific complaints were that large numbers of roosting and resting birds damaged overhead wires and TV aerials.
- Health risks associated with the deposition of faeces and domestic refuse on houses and in parks, public places, drinking water tanks, and open air restaurants. Preliminary studies of the internal organs of 150 crows revealed the existence of several organisms relevant to human health including *Salmonella*, *Shigella*, and *Escherichia*, all of which can cause enteric disorders.
- Crows attack and worry farm livestock causing damage and mortality. They have been blamed for taking eggs and chicks and killing adult chickens as

Plate 1. House Crow *Corvus splendens*, Djibouti, March. (*Geoff and Hilary Welch*)

well as being the possible cause of *Salmonella* outbreaks at egg farms. Newborn calves at a dairy farm at Gawala were said to have been killed by crows, through attacks on their eyes.

- Crows have become a crop pest in agricultural areas adjacent to Aden, especially at Lahej and Abiyan. Crops attacked include papayas, mangos, bananas, sorghum, maize, tomatoes, melons, and guavas.
- Major interference with the fish-drying industry through the stealing of fish and the contamination of it with faeces. This damage has reached the point where fish-drying has now all but ceased in the Aden area.
- The worrying and predation of indigenous birds, especially eggs and nestlings, has become such that a number of species previously common in the Aden area are now found only in very small numbers. Birds nesting in the open are molested and robbed, and bush-nesting species such as Yellow-vented Bulbul *Pycnonotus xanthopygos* are also predated. It is perhaps significant that, following crow control measures in 1987–9 (see below), the bulbul has again been seen in numbers in the Aden area after an absence of several years (N. Obadi, pers. comm.). Hole-nesting species such as Rock Pigeon *Columba livia*, Ring-necked Parakeet *Psittacula krameri*, Blackstart *Cercomela melanura*, and House Sparrow *Passer domesticus* are not as susceptible to the attentions of House Crows and are consequently present in reasonable numbers. The crows appear to have a particular loathing for all raptors and any that appear are relentlessly mobbed (pers. obs. and Ash 1984a). They seem to have had a most profound effect on the numbers of Black Kite *Milvus migrans*, which was once common around Aden but is now relatively scarce. The Egyptian Vulture *Neophron percnopterus* was also very common at one time, mainly as a non-breeding visitor, but is now scarce.

The central thrust of the Ash report was an ecological approach to control measures. In order to deny the crows a food source he recommended the bagging of household refuse, together with its regular collection and disposal. To be successful this approach would require a considerable improvement to the refuse collection and disposal infrastructure throughout the area and a great deal of effort to make the public aware of the campaign and the need for it. As secondary measures Ash recommended that poisoning should be investigated and that campaigns be initiated of shooting, trapping, and nest destruction in the breeding season. Legislation requiring landowners to destroy nests should also be considered.

RECENT CONTROL MEASURES

During a visit to Aden in October–November 1989 to conduct a survey for the Atlas of the Breeding Birds of Arabia project (Jennings *et al.* 1991), I was briefed on the House Crow problem by the Director of the Aden Governorate Health Department, Badr M. Nagi, and his staff, and was given information on the control programme that he had instituted.

The problem is limited to the western part of southern Yemen, that is the Aden

Plate 2. House Crow *Corvus splendens*, Eilat (Israel). (*Alan Roberts*)

Governorate and the border areas with the Lahej and Abiyan Governorates. The recommendations of Ash (1984a) were taken up by the Aden Governorate whose municipal area includes Crater, Tawahi, Maala, Khormaksar, Shaikh Othman, and Little Aden, but not by the other two governorates in respect of the crow concentrations at Lahej and Abiyan.

The Aden Governorate carefully considered all the points of the Ash report, especially its recommendations concerning the improvements of public hygiene measures. To be successful this approach would require crows to be excluded from domestic rubbish, their main food source, by providing suitable closed rubbish receptacles and plastic bags to all households. Although publicity was given to these aspects to improve public hygiene and awareness about the crow problem, this approach was judged by the authorities to be too difficult to be successful, especially as only very limited municipal funds were available for implementation. Even the provision of plastic bags at public expense was regarded as too great a burden on financial resources. It was determined therefore to concentrate control efforts on Ash's secondary recommendations, i.e. on crow eradication through direct means, and a decision was taken to introduce a control programme based on poisoning. Arbad Zajak of the Hungarian Ministry of Agriculture was invited to Aden in 1985 to advise on suitable chemical agents and to train staff for a poisoning programme. This was to be based on the placing of poisoned baits in the form of injected hens' eggs throughout the governorate. The poison used was methylhydrochloride (aniline). This, as a 1% solution, is the same as an American product, 'Starlicide', available in the early 1980s and effective against Starlings *Sturnus vulgaris* and 'blackbirds'; as death does not occur until 1–3 days after ingestion birds often die away from the baiting area and at roosts (P. Heathcote, pers. comm.).

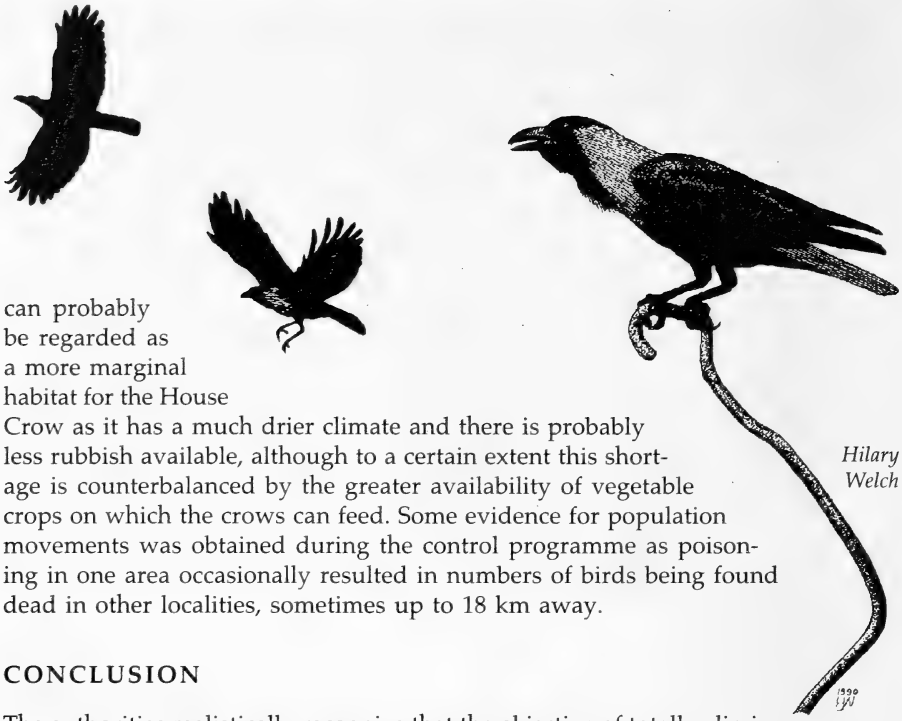
Experimental poisoning began in 1986 and a full baiting programme was instigated in April 1987, continuing until May 1989. A new programme commenced in October 1989 at the time of my visit. Initially the baiting produced extremely good results but workers on the project noticed that crows became bait-shy and would not touch the eggs if they were placed out too frequently. To counteract this the baiting was varied through the placing, alternately, of injected eggs and minced meat, a strategy that was successful, although again workers reported that the crows became wary if there was a pattern to the activity. In addition, baiting of other food sources was carried out when suitable opportunities arose, for example the poisoning of roadside animal carcasses on which crows might feed (an unfortunate practice which probably resulted in the destruction of other scavenging bird species, wildlife, and dogs and cats). The initial project was budgeted at 20,000 dinars (US$60,000) over the two-year period, a sum which was to pay for baits, workers, transport, and poison. The cost of eggs was the major element within this. At the beginning of the project 18,000 eggs were put out in the first week and baiting then continued at the rate of 3,000 eggs per week but was reduced in the later months of the programme to only 1,000 per week. Initially, ten workers were involved in the project but this was eventually reduced to four. The poisoning programme was backed up by TV and radio publicity to warn the public of the baiting and of its objectives. Each egg was stamped with a skull and crossbones design and no accidents were reported from amongst the public. The workers used protective clothing.

After each baiting, corpses were collected in the local area 24 hours later and were counted before destruction (Table 1), so that a minimum of 241,218 birds were thus known to have been killed during the first two-year programme. The authorities estimated that at least 10% additional killings took place for which the corpses were not found, though in view of the movement of birds and the difficulties of access to all areas this seems likely to have been an underestimate. Simultaneously with the poison baiting and hygiene and refuse awareness programmes, nest destruction was carried out during the main breeding period from March to May. Some shooting was attempted although this control method was quickly recognized as difficult, ineffective, and expensive. The programme was a success in the sense that everyone I questioned in the governorate, whether Ministry of Agriculture officials or Aden residents, reported how the numbers of crows were very much less in late 1989 compared with when the programme started. Even so, however, I found that the birds were still numerous everywhere in the Aden area.

Table 1. Numbers of dead House Crows *Corvus splendens* collected after poisoned baiting in Aden (Yemen).

May 1987	37,497
June–December 1987	130,040
January–June 1988	51,551
July–December 1988	13,430
January–March 1989	8,700
Total	241,218

Following the initial success of the poisoning programme, the authorities considered that the remaining high population of House Crows in Aden meant that there was almost certainly immigration from the dense populations that remained in nearby areas at Lahej and Abiyan where there were no control measures. Lahej



Hilary Welch

can probably be regarded as a more marginal habitat for the House Crow as it has a much drier climate and there is probably less rubbish available, although to a certain extent this shortage is counterbalanced by the greater availability of vegetable crops on which the crows can feed. Some evidence for population movements was obtained during the control programme as poisoning in one area occasionally resulted in numbers of birds being found dead in other localities, sometimes up to 18 km away.

CONCLUSION

The authorities realistically recognize that the objective of totally eliminating House Crows from Aden is impractical at the present time. Their aim, therefore, in the poisoning campaigns and in other direct control efforts has been to reduce the numbers to the lowest level possible.

Two factors severely limited the success of the programme. Firstly, there was a shortage of financial resources within the Aden Governorate for this public health task. In this respect the governorate received no financial assistance from either central government or from outside agencies such as the UN Development Programme (although the latter was offered: J. S. Ash, pers. comm.). Secondly, as the adjacent governorates of Lahej and Abiyan had no control programmes of their own, the space left by the crows killed in Aden was almost certainly quickly filled from those denser populations. The Aden Governorate authorities were especially disappointed that their thorough and expensive control programmes had not been matched by the other governorates, their lack of activity having severely diluted the effectiveness of the Aden measures.

One reported side effect of the reduction in the number of House Crows in Aden has been that the population of black rats *Rattus rattus* has increased. The evidence is largely anecdotal but is likely to have a sound basis because rats no longer have so many crows to compete with for the same food source. Also, crows are prone to harry rats when these are in the open and they are also possibly a predator of young rats.

In view of the House Crows' ever-increasing numbers and the difficulties they create, the Lahej and Abiyan Governorates may eventually be forced to take action against them. When this happens the three governorates will be much better able to act effectively in unison, and no doubt all will benefit from the methods and expertise which has been gained by the Aden Governorate since 1987.

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Observations on a colony of Crab Plovers *Dromas ardeola* in Abu Dhabi

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Summary Although several colonies of Crab Plover *Dromas ardeola* were occupied earlier this century in the Arabian Gulf only the colony on Abu al Abyadh, 60 km south-west of Abu Dhabi, is presently known to be active in that region. This colony was studied during May–August 1991. It is of about 200 pairs and situated on a sandbank alongside a coastal creek. Birds excavated burrows in early May, and were observed displaying and mating in late May. Eggs were thought to be laid in late May or early June and the first chicks were noted in early July. Each pair reared one young on a diet consisting almost solely of crabs. The young were dependent on their parents during their time at the colony and at least in the initial post-fledging period. Activity at the colony peaked in early morning and late afternoon. A high degree of intra-specific aggression was noted at the colony, contradicting previous observations. Adults were seen to forage in shallow, mangrove-lined lagoons and bays, usually quite close to the colony. Three foraging methods are described.

THE CRAB PLOVER *Dromas ardeola* is the sole and monotypic member of the family Dromadidae of the Voous (1977) classification. Its taxonomy is unclear, but the DNA–DNA hybridization work of Sibley and Ahlquist (1990) allies it to the pratincoles and coursers, and places this group in the superfamily Laroidea with the skuas, gulls, terns, and auks—and thus closer to them than to the true plovers. Crab Plover is unique amongst the waders and gulls, etc., in several of its behavioural and physical traits, particularly its unusual breeding habits: it nests in large colonies on sandy coasts or islands, often in areas of sand dunes, up to 1 km from the sea, and the nest consists of a burrow between 120 and 188 cm long which the bird excavates itself (Cramp and Simmons 1983). Despite being a conspicuous and vocal bird there is very little information on its breeding behaviour and biology, though Evans (1988) provided observations of birds displaying in Yemen in April. The few known colonies are remote, and access to them is often difficult. Even if a colony can be observed, the fact that the birds nest underground makes research difficult, and these are probably the primary reasons for the lack of information.

DISTRIBUTION AND STATUS IN THE GULF REGION

The breeding range is restricted to coasts in the Indian Ocean, particularly the north-western part centred on Arabia (Cramp and Simmons 1983). Early travellers in the region such as Hume (1890), Ticehurst *et al.* (1922, 1925, 1926), and Dickson (1942) reported Crab Plover as a locally common species in the north Arabian Gulf, although they found colonies difficult to locate. Meinertzhagen (1954) described it as common in the Gulf, reporting breeding colonies on Umm-al-Maradim, Kubbar, and Auhah islands, all of which lie off Kuwait and north-east Saudi Arabia. The

Ahmadi Natural History Group learned that local fishermen were still making egg-collecting trips to Auhah in the early 1970s (S. Howe pers. comm.), and S. Howe saw a chick on Failaka in this period, though no colony was found. Haynes (1979) and Cowan (1990) reported that there was no concrete evidence that Crab Plovers still bred along the coast of Kuwait, although they were still commonly seen, and Cowan suspected they still bred, possibly on Warba or Bubiyan islands. The recent war in Kuwait can only have decreased the possibility of continued breeding in the area.

Colonies were reported from Warba, Boonah, and Dara at the head of the Gulf (Ticehurst *et al.* 1922, 1925, 1926) and from the Bushire region of Iran on the island of Montafis (Hume 1890). D. Scott found Crab Plovers all along the Iranian coast and in 1975 reported a dense colony on Umm al Karam (F. E. Warr pers. comm.). Carp (1980) reported a breeding colony on the Iranian side of the Strait of Hormuz, and until the discovery of the Abu al Abyadh colony (see below) this was the most recent reference to breeding in the Gulf region.

Crab Plovers are irregular passage migrants in Bahrain (E. Hirschfeld pers. comm.) but are quite regular along the Gulf coast of Saudi Arabia although there is no evidence that they breed there (Bundy *et al.* 1989; Symens 1991; M. C. Jennings pers. comm.). Information recorded by the Atlas of the Breeding Birds of Arabia project has found no recent breeding records on the Arabian side of the Gulf other than the colony in the UAE (M. C. Jennings pers. comm.).

Outside the Gulf, breeding has been confirmed near Masirah island off the Indian Ocean coast of southern Oman (Rogers 1988), on the Farasan Islands in the Red Sea off Saudi Arabia (Jennings 1988), in the Gulf of Aden in Somalia, and is suspected on the coasts of Sudan, Eritrea, Sri Lanka, and north-west India (Palmes and Briggs 1986; Urban *et al.* 1986).

The status of the Crab Plover in the Gulf region remains uncertain due to the difficulties of locating colonies on isolated islands and in politically sensitive areas. It is likely that other colonies do still exist, particularly in coastal Iran. The fact that

Plate 1. Crab Plovers *Dromas ardeola* at Abu al Abyadh, early July 1991, showing the first downy young emerging. (*R. P. Morris*)

Crab Plovers nest colonially makes them very vulnerable both to coastal development and to direct human persecution. Ticehurst *et al.* (1922) reported that both eggs and young in Iraq were taken in large numbers for food. It is essential that known colonies are protected from these threats in order to ensure the survival of this remarkable wader in the Arabian Gulf.

THE ABU AL ABYADH COLONY

Abu al Abyadh lies about 60 km south-west of Abu Dhabi island (Figure 1) and is the largest of Abu Dhabi's islands, being approximately 33 km from east to west and, at its widest point, 20 km from north to south. The island is about 7 km from the shore and is reached by a causeway from where a ferry crosses the narrow channel of Khawr Qantar to the island. Abu al Abyadh is low-lying and comprised of calcareous sands and sabkha saltflats. Parts of the coast are fringed by mangroves *Avicennia marina* (Brown *et al.* 1991). The island is a privately owned nature reserve belonging to His Highness Sheikh Khalifa bin Zayed al Nahyan, Crown Prince of Abu Dhabi, and there is no public access.

Crab Plovers have been known by local people to breed on Abu al Abyadh for at least 20 years, but it was not until May 1990 that the colony was encountered by the Emirates Natural History Group and subsequently documented (Verhage *et al.* 1990). Around 700 birds were present and there were estimated to be up to 200 burrows, but the guide informed the group that the colony had formerly been

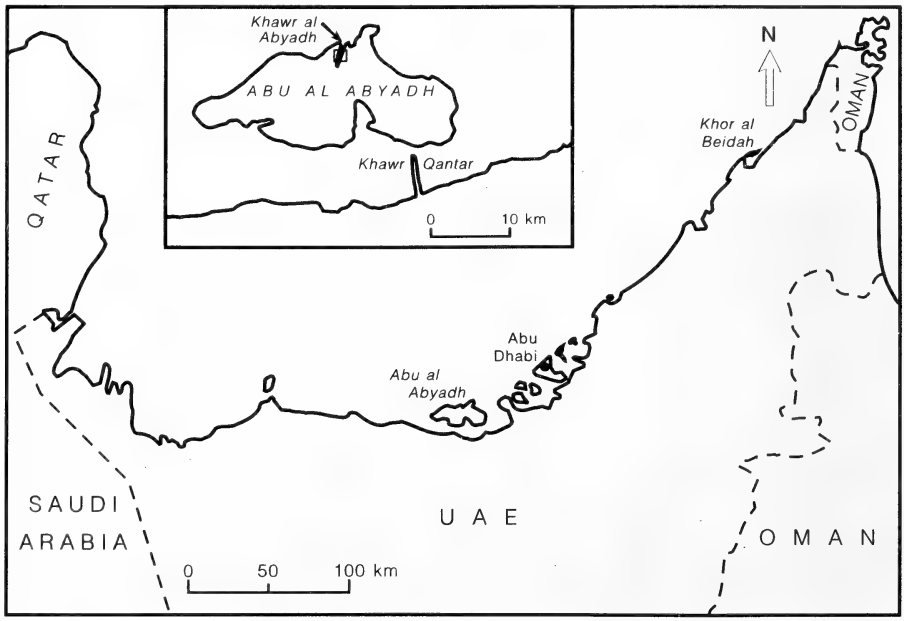

Figure 1. Location of Abu al Abyadh and Khawr al Abyadh.

much larger, numbering several thousand birds. There was, apparently, a second colony, but unfortunately that area was planted with trees early in the island's development and was thus abandoned, though it is not clear if both colonies existed simultaneously or if the present colony was formed after the destruction of the original one. The birds have been exploited for food, both eggs and young being taken (Brown *et al.* 1991).

The existing colony is situated on Khawr al Abyadh, a natural though partially dredged creek that runs inland from the central part of the north coast. The birds nest on a raised sandy bank immediately adjacent to the creek (Figure 2). The bank is approximately 150 m long (running north-west to south-east), 50 m wide, and rises 1–1·5 m above the high-tide mark. The actual colony occupies an area of about 70 × 50 m. At high tide the bank is connected to the main island by only a narrow ridge. Within the creek there are large areas of mangroves and tidal mudflats where large numbers of the adult birds feed.

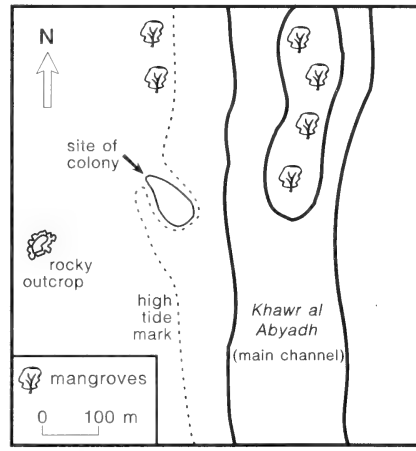

Figure 2. Site of the colony of Crab Plovers *Dromas ardeola* on Abu al Abyadh.

In the United Arab Emirates the Crab Plover is only occasionally seen away from Abu al Abyadh in summer, and from the lagoons of Khor al Beidah in winter (Figure 1), and Richardson (1990) records it as a localized passage migrant and winter visitor. The number of birds that breed on Abu al Abyadh is similar to the number that winter on Khor al Beidah, and these birds may be of one population, shifting seasonally between the two sites. In 1991 all the Crab Plovers had left Abu al Abyadh by early September, and by early October over 300 were on Khor al Beidah including over 60 immature birds (pers. obs.); 560 were counted there in 1990 (C. Richardson pers. comm.). Breeding is also suspected to have taken place on Umm Amim (3 km north of Juneina) where old abandoned burrows were found in 1990 (J. N. B. Brown pers. comm.).

Methods

The observations described here were made by myself on visits to the island during 5–9 May, on 21 May, and almost daily between 6 July and 20 August 1991. The Emirates Natural History Group visited the island on 20 June, making some additional observations. I was at the colony regularly from 06.00 to 10.00 hrs and from 16.00 to 18.30 hrs, and occasionally during the heat of the day. Using 10 × 40 binoculars and a 20 × 60 telescope, the birds were watched from a rise about 3–4 m high and approximately 170 m west of the colony. This proved to be an excellent position, giving a view of almost all birds present (though not all burrows), and my presence appeared to produce no disturbance in the colony.

Plate 2. Burrows of Crab Plovers *Dromas ardeola*, Abu al Abyadh, mid-May 1991. (*R. P. Morris*)

Burrows and excavation

On 5 May no birds were present at the site of the colony and no burrows were initially visible, though closer inspection revealed that the burrows had been filled in, presumably by wind-blown sand and natural collapse. Over the rest of the island 38 birds were seen that day, and during the next four days numbers present appeared to increase with 40 on 7 May and 216 on 9 May.

On 9 May 60 birds were seen at the colony. They were very vocal and obviously inspecting the burrows. This was presumably the initial digging period and up to ten birds at a time were observed flicking sand out of the burrows with their bills. Most, but not all, of the birds appeared to be paired and a lot of aggression was noted (see Inter- and Intraspecific Aggression, below).

On 21 May there was a minimum of 420 birds at the colony though the true number may have been substantially higher as at any one time there were birds down burrows, feeding in the creek, or out of view on the far side of the mound. The nesting bank was flat on top and the burrows were concentrated there, on the part of it closest to the creek. Most entered the ground at approximately 45°, but those in the centre of the bank appeared to go almost vertically into the ground, although this could not be closely investigated for fear of collapsing the network of tunnels. The entrances were arch-shaped in section, and 20 averaged 18·2±SD2·9 cm wide and

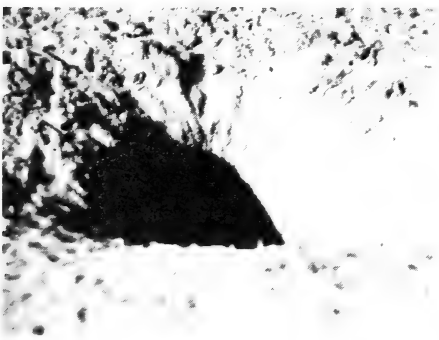

Plate 3. A burrow entrance. (*R. P. Morris*)

15·6±SD3·1 cm high. Those on the north side of the ridge faced north-east and those on the south faced south-west, both at approximately 90° to the prevailing north-west sea breeze and south-east land breeze, which presumably helped to prevent blockage by wind-blown sand. No attempt was made to find out the length of the burrows, though I was assured by local people that they were longer than an arm. I estimated there to be between 180 and 200, some only 1·5 m apart, though isolated ones on the colony edge were 5–6 m from their nearest neighbour.

The majority of the burrows appeared to be complete by 21 May, but excavation was noted then at a number. Birds digging near the surface appeared to be chiselling the sand with their bills and flicking sand from the burrows with their feet. Birds that were deep within the burrows could not be seen, and the only evidence that excavation was occurring was the continual shower of sand coming from the entrance. Burrowing was noted on most visits to the colony up to mid-July, although from 21 May this only involved one or two birds on each occasion, presumed to be clearing away recent wind-blown sand.

Sexual interactions

On 21 May the birds appeared to be paired and actively defending a burrow. There were no obvious differences between male and female to allow separation in the field, so it was often difficult to interpret observations, though birds could be sexed retrospectively once they were seen mating. In the early morning of 21 May, over a period of 20 minutes, six pairs were watched courting and mating. All these were seen displaying more than once although only two pairs mated more than once during this time. The following features of behaviour were common to all.

The male initiated the courtship by slowly approaching the female head-on, calling raucously and repeatedly as he did so. The female also appeared to call occasionally but the sound could not be discerned. Both birds stood erect and the male began rubbing his bill on the female's, first on one side and then on the other. Both birds held their bills open and occasionally the male put his lower mandible inside the female's open bill. The birds were usually head-on to one another during this procedure, which lasted between 20 and 40 seconds, although on two occasions they stood side by side and turned their heads towards each other, bill-touching as before.

The female then turned away from the male and walked slowly away. The male followed 1·5–2 m behind, the female moving along a sinuous path and occasionally sweeping round in a complete circle. The walk lasted for up to a minute, but on most occasions was no longer than 10–15 seconds, after which the female crouched down and prepared for copulation. The male mounted for 10–20 seconds, using his wings to balance, and occasionally held the back of

Plate 4. Crab Plovers *Dromas ardeola* copulating, Abu al Abyadh, May 1991. (*R. P. Morris*)

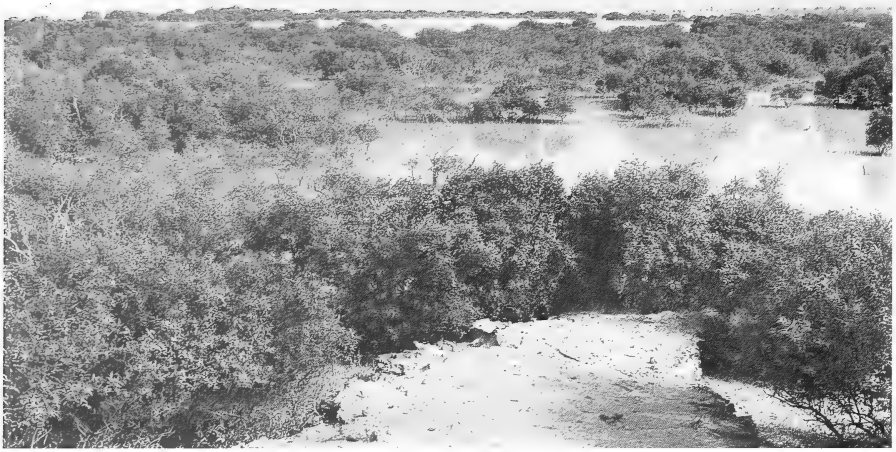

Plate 5. Mangroves at Khor al Abyadh, a typical feeding area. The colony is on the far side of the mangroves. (*R. P. Morris*)

the female's neck with his bill. Sometimes the male was ignored by the female from the outset and appeared to abort the display. Displaying pairs were also frequently interrupted by single, wandering birds. In all, pairs were seen in mutual display on 17 occasions and ten of these resulted in copulation. Mating was seen only on 21 May.

This display is similar to that noted by Evans (1988) during April in Yemen, although he did not observe copulation following it. Evans believed that pair formation was still in progress which may explain why mating was not seen at that time. There seems to be no previous description of copulation in the Crab Plover.

Once at Abu al Abyadh a male (A) was seen copulating with his partner three times in a space of only four minutes, each time following the sequence described above. On the first occasion he appeared to lose balance after only 5–6 seconds. On the second occasion a neighbouring male (B) attacked the pair as they copulated and male A again lost balance. Male B then attempted to copulate with the female but was unsuccessful, and male A chased male B in the aggressive-crouch posture (see below) as also described by Evans (1988). At the third attempt the pair appeared to mate successfully. It was initially assumed that male B was unattached, but he was chased 5–6 m by male A to a burrow where another bird met him, and this pair were later seen mating. This indicates that paired males may sometimes, at least, be promiscuous, attempting to copulate with females other than their mate.

Laying and incubation

I was unable to visit the colony in June and so can only estimate the date eggs were laid and their period of incubation. The fact that the birds were mating on 21 May 1991 suggests that laying that year would have been around the last week of

May or the beginning of June, but when the Emirates Natural History Group visited the colony on 21 May 1990 eggs were already to be seen on the surface of the ground (Brown *et al.* 1991). It is possible that the birds were late returning to the colony in 1991 due to the unusually cold spring, but equally it may be that some eggs had in fact already been laid by 21 May in that year.

On 20 June 1991 the Emirates Natural History Group visited the colony (Brown *et al.* 1991). No young birds were seen, although they observed up to 20 broken eggshells on the west side of the colony. These had presumably been removed by adults suggesting that some young had already hatched. Adults were also observed returning to their burrows with food, but whether this was for recently hatched young or for partners incubating eggs could not be determined. Assuming that the birds laid around the last week of May, and that they have an incubation period comparable with other similar-sized waders (e.g. Avocet *Recurvirostra avosetta* 23–25 days, Oystercatcher *Haematopus ostralegus* 24–27 days: Cramp and Simmons 1983), the first young should have already hatched by 21 June, as the evidence suggests.

Fledging

The first young birds were observed at the colony at the next visit on 6 July, when up to 600 adults were also present. The largest young were then approximately half the size of the adults and the smallest about one quarter the size. During the daily visits which followed over the next month the first juvenile capable of flight was noted on the creek adjacent to the colony on 28 July. It was accompanied by its parents and was approximately 80–85% of adult size with a bill substantially smaller than the adults'. By 31 July a minimum of eight birds had fledged, and on this day 108 young were counted, most looking close to fledging. This was the highest count of young birds.

Plate 6. Crab Plovers *Dromas ardeola* with juvenile close to fledging, Abu al Abyadh, late July 1991. (*R. P. Morris*)

The first two weeks of August saw a mass exodus from the colony and by 18 August only nine juveniles remained. Family parties were scattered widely around the island. Assuming it takes a young Crab Plover approximately five weeks to fledge (Avocet 35–42 days, Oystercatcher 28–32 days: Cramp and Simmons 1983) then the end of July or beginning of August would be the expected fledging time.

Activity at the colony

Colony activity was high in the morning (before 09.00 hrs) and in late afternoon (after 16.00 hrs), but during the middle of the day there was a distinct lull, particularly between 11.00 and 14.00 hrs when temperatures were regularly over 40°C in the shade: adults still returned to the colony with food but at less regular intervals, and some spent an hour or more down the burrows. Young birds were very rarely seen during this period of the day, tending to remain underground, and small midday roosting flocks of adults formed under the shade of mangrove trees.

After hatching, the colony was a hive of activity during the early morning as each adult returned every 5–10 minutes with food for the young. The adults would either land a few metres from their burrows and run straight down, emerging ten seconds to three minutes later without their prey, or they would feed young waiting outside or emerging from the burrow. In the latter case the young ran up to the parent and begged by pointing the bill upwards and calling. The adults usually fed them by regurgitating food straight into their open mouths. However, adults were also seen (1) regurgitating food onto the ground and allowing the young to feed themselves, and (2) putting large crabs on the ground (carried to the colony in the mouth of the adult), pulling pieces from the underside of the crab, and feeding them to the young. As the young got older they spent more time outside the burrows waiting for their parents to return. During the first week or so after a chick appeared above ground an adult was usually present, but it was frequently left alone in the week prior to fledging, crouching or standing still, often right in the burrow entrance. Only one young bird was noted at any particular burrow and no parents were ever observed feeding more than one bird. The fact that Crab Plovers usually only rear one young (Cramp and Simmons 1983) was further substantiated when family parties were observed in the post-fledging period.

Plate 7. Juvenile Crab Plover *Dromas ardeola*, Djibouti, October 1987. (*Geoff and Hilary Welch*)

Fledged juvenile Crab Plovers often accompanied their parents while forag-

ing but very rarely caught food themselves. They begged almost continuously from their parents and from any other adult Crab Plover in the vicinity, making a plaintive high-pitched trill audible up to 1 km away. Young birds that begged from adults other than their own parents were usually chased away (see below). Elsewhere, juveniles have also been recorded soliciting from each other (Cramp and Simmons 1983). Some juveniles were observed with two parents in attendance and others with only one, but none were seen alone, illustrating their dependence on the parents. Young still depend on their parents at least into November in Yemen (Brooks *et al.* 1987), and observations by Palmes and Briggs (1986) suggested that the bond still existed in February and March among birds wintering around the Gulf of Kutch in north-west India.

When a potential predator (myself) approached the colony the birds began calling with a high-pitched 'kluu kluu kluu', often increasing in volume and in speed of delivery. When I approached on one occasion to within 100 m the birds began to walk away from the colony and the young were ushered down their burrows. This exercise was not repeated as I did not want to be a cause of disturbance. Instead, I made a hide from a large cardboard box and approached the colony inside it. The birds did not react until I was 10 m away but instead of retreating from the box they ran towards it, to within 7–8 m, and inquisitively investigated this intruder. After a minute or two the box was ignored, but for fear of creating disturbance I used the hide (for photographs) only twice. Records of Crab Plovers gathering around collectors are documented in Cramp and Simmons (1983).

On 21 May an Egyptian Goose *Alopochen aegyptiacus* (an introduced species) was observed wandering around the colony and the Crab Plovers became alarmed, calling loudly. As the goose walked straight across the middle of the colony, attempting to peck any Crab Plovers that were within reach, the plovers walked away from it, creating a path for it to follow. Once the goose had left the colony the Crab Plovers returned cautiously to their burrows.

Inter- and intraspecific aggression

Contrary to previous observations summarized by Cramp and Simmons (1983), one of the most notable aspects of behaviour at the Abu al Abyadh colony was that the birds were highly aggressive, towards each other and to other species, though interspecific encounters were only occasionally observed. Intraspecific aggression was common and occurred in the following situations.

- When an adult approached within 1–2 m of another feeding on the creek.
- When an adult approached a pair and their burrow (particularly in late May, probably linked to pair formation, particularly the protection of partners from unpaired individuals).
- When an adult returned to the colony with food and other birds attempted to steal the food.
- When a young bird wandered near to another pair's burrow or begged from adults other than its own parents.

The intensity of the aggressive encounters varied considerably. When a young

bird wandered around the colony most adults would give it a quick jab to encourage it to move on. Fledged juveniles frequently begged indiscriminately, causing adults other than their own parents to chase them away in the aggressive-crouch posture: the adult walked forward, quite slowly to begin with, holding its head low and slightly forward, and then charged at the young bird (as described in Cramp and Simmons 1983), causing it to retreat.

The bird defending a resource was usually the initiator of aggressive behaviour, and an intruder approached by such an aggressor would do one of the following.

- Hold its ground.
- Retreat, usually by jumping backwards with a short flight.
- Adopt an apparently submissive position by crouching low and withdrawing its head.

When the intruder held its ground, which such birds commonly did, the aggressor adopted the aggressive-crouch position described above and confronted the intruder. Some encounters involved a quick peck by the aggressor and the intruder retreated. Others, however, were far fiercer. Birds frequently stood up to one another jabbing their bills at each other. Often one bird would take hold of the other's bill and physically force it backwards, occasionally knocking it to the ground. Birds defending a mate or a nest hole and its surround were never seen to lose a confrontation.

Plate 8. Adult Crab Plover *Dromas ardeola*, Abu al Abyadh, July 1991. (*R. P. Morris*)

Aggression while feeding

A bird feeding in the creek would allow another as close as 1–2 m before it provoked a reaction. One would begin calling and then adopt the aggressive-crouch posture. The second individual was usually chased 4–5 m away and both then continued to feed. Rarely, one bird flew towards another from further away, 5–6 m, and chased it in flight. These interactions are similar to those described by Swennen *et al.* (1987) during late October in Thailand, although in their observations, which only involved two birds, a separation of at least 10–30 m was maintained. Palmes and Briggs (1986) noted that birds feeding in the Gulf of Kutch were even more spread out, being up to 50 m apart.

Adults returning to the colony with food were occasionally subject to kleptoparasitism from their neighbours. Birds defending their prey rarely lost out, opting to attack the intruder first and then flee to their burrow or young. Occasionally however a second bird would seize the prey and steal some or all of it.

Plate 9. Adult and juvenile Crab Plover *Dromas ardeola*, Yemen, October 1987. (*Rod Martins*)

Once, three birds got hold of one crab and a three-way tug-of-war ensued, the original owner being left with a legless meal. Most birds seemed to avoid losing prey by landing close to their own burrows and running straight to their young.

On eight occasions when a Crab Plover caught a crab one or two Turnstones *Arenaria interpres* approached it and attempted to scavenge any remains. Once, when a Crab Plover caught a large crab 7–8 cm across, two Turnstones fed on the remains for over a minute. A similar relationship was noted by Swennen *et al.* (1987), and Turnstones have also been described associating with other species in a similar fashion (Cramp and Simmons 1983). Crab Plovers were twice observed stealing small crabs from Turnstones, behaviour which was also noted by Penny (in Cramp and Simmons 1983).

In all, 21 other species of wader were noted on the creek during the study, often within a few metres of Crab Plovers, but no interactions between them and the Crab Plovers were noted.

Food and foraging

The food taken by the Crab Plovers was not studied in detail but of 245 identifiable items brought to the colony, all but five (98%) were crabs. The other prey items observed were four fish (probably mudskippers) and one bivalve mollusc. J. N. B. Brown (pers. comm.) also observed an adult bird with a fish 15 cm long. Many unidentifiable prey items were seen being regurgitated by the adults for the young. Birds foraging were only seen catching crabs. J. N. B. Brown believed that some of the crabs were probably *Metopograpsus messor*, a large black mangrove-dwelling species. This corresponds with my observations although the carapace size of the crabs varied from c. 2 to 8 cm and the colour from black to a sandy-brown. Birds were seen feeding on the shoreline as well as in the mangroves so it is likely that a variety of species is preyed upon. It is hoped that a more detailed study can be made of the Crab Plovers' diet in the future.

The Crab Plovers on Abu al Abyadh were observed feeding on open tidal mudflats (the water depth varying from 0 to 10 cm), along the narrow, steep-sided

channels within the mangroves, and amongst the more open areas of trees. The sandier coastal beaches tended to be avoided. Some birds foraged within 100 m of the colony whereas others were noted up to 12 km away, though most seemed to stay within 3–4 km.

The common foraging method used when the birds fed on exposed mudflats or in shallow water was the walk–stop–look method described by Swennen *et al.* (1987), and it is quite obvious that the prey is located visually. Most prey captured was swallowed immediately, and having caught a crab the birds dipped their bills in the water and, after a few seconds, continued to feed.

Occasionally, in catching larger crabs, the Crab Plovers used the 'dancing' method which was also described by Swennen *et al.* (1987). Having located the prey the Crab Plover ran around in a small circle and immediately stabbed at it whilst jumping from the water. On one occasion the intended victim was also observed. The Crab Plover approached a crab 4–5 cm across in typical fashion, and at a distance of approximately 1 m the crab stood up on its front legs and raised its claws. The Crab Plover suddenly ran behind the crab and seized it from behind as described above, shook it violently, and took it to a nearby sandbank where it was placed on the ground and stabbed several times on the underside before being eaten. It would appear that the dancing method is used to avoid injury from the crab's powerful claws, as suggested by Swennen *et al.* (1987).

A slightly different technique was observed when birds fed along the channels within the mangroves. Instead of the typical walk–stop–look method the birds walked very slowly along the edge of the water, stalking prey in the manner of a heron. When a crab was located the Crab Plover stepped forward very slowly and then stabbed at the victim. This differed from walk–stop–look in that (1) the bird rarely stopped completely and (2) when prey was located the bird did not run forward and stab but stalked it until it was within striking distance.

Crab Plovers were regularly observed dipping their bills into the water. This was commonly done just after swallowing prey, and was presumed to be a method of cleaning the bill. However, birds were also regularly seen dipping their bills into the water whilst foraging, for reasons that were not discernible. The suggestion of Swennen *et al.* (1987) was that this might be a method of tasting the water for prey. The diet and foraging behaviour of the Crab Plover are discussed further by Cramp and Simmons (1983) and Swennen *et al.* (1987).

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NOTES

First records of Dead Sea Sparrow *Passer moabiticus* in Arabia

ERIK HIRSCHFELD and PETER SYMENS

ON THE morning of 13 November 1991, PS and seven other researchers from the National Commission for Wildlife Conservation and Development (Saudi Arabia), Royal Society for the Protection of Birds, International Council for Bird Preservation, and Yamashina Institute for Ornithology (Japan), all involved in wader ringing in Saudi Arabia, observed a flock of at least 70 Dead Sea Sparrows *Passer moabiticus* on the golf course at Jubail in the Eastern Province. The birds were seen in small scattered flocks perched in dense shrubby date palms *Phoenix dactylifera* on hummocks, this being the only vegetation on the golf course. The immediate surroundings consist of barren sabkha. Regularly, the small flocks took off to form one big flock and tried to move out of the area, but the dense fog that prevailed throughout the day prevented them from doing so and the birds were still present that evening. The next day they were not present, and a search in the surrounding area drew a blank. The golf course had been visited by other birdwatchers on 12 November but no Dead Sea Sparrows were then observed, so presumably the birds were present for only a single day and had been forced down by fog while overflying. Further searches at different localities in the Eastern Province during

Plate 1. Second-winter female Dead Sea Sparrow *Passer moabiticus*, November, Israel. (*Hadoram Shirihai*)

the next three months failed to reveal any wintering Dead Sea Sparrows.

About a month later, on 19 December 1991, EH visited a farm area at Ghalali near Muharraq on Bahrain for a count of wintering birds. The site is censused at least once in every five-day period and even the resident House Sparrows *P. domesticus* are closely scrutinized. On this occasion at least three male and nine female Dead Sea Sparrows (and a Black-breasted Weaver *Ploceus benghalensis*) were present in the flock of House Sparrows. Numbers of Dead Sea Sparrows there increased to 25 by the beginning of January, rose to 40 in late February, and the last individuals (two males and two females) were seen on 17 March 1992.

Plate 2. Wintering habitat of Dead Sea Sparrows *Passer moabiticus* at Hamalah farm (Bahrain). (*Erik Hirschfeld*)

On 22 December 1991 EH visited Badan farm in the north-west of Bahrain and found at least 25 Dead Sea Sparrows. This group increased to around 90 at the beginning of January but then disappeared, presumably due to the fields having been cut, and were not seen after 6 January. 60 birds that were found at nearby Hamalah Experimental Farm on that date were presumed to be from the Badan flock and they stayed there until 13 March, numbers increasing to 120 individuals during the first half of February and reaching 200 or more on 11 March. A visit to an isolated grove of mesquite *Prosopis* trees in the desert south of Riffa on 4 March produced at least 15 Dead Sea Sparrows, which could have been there during most of the winter as the site had not been visited previously. In total, at least 245 individuals in four flocks were observed in Bahrain during the winter.

On Das Island off the coast of Abu Dhabi in the United Arab Emirates, Len Reaney and Ian Sherman found four Dead Sea Sparrows (three males and a female) on 21 January 1992 and these were last seen on 21 March.

These records constitute the first of the species for the respective countries and for the Arabian peninsula, and all have been accepted by the appropriate national recorders.

Males. Quite straightforward to identify, having a triangular black throat-patch (increasing in blackness as the winter proceeded), pale yellow submoustachial stripe, contrasting supercilium (rusty at the rear), grey ear-coverts, cheek, and crown, rich chestnut lesser and median wing-coverts (varying individually in brightness), and a back striped blackish and rusty-brown. Tertials black with contrasting whitish edges. Underparts greyish-white. The undertail-coverts were faintly spotted in a rusty tone, a character which Sharpe (1888) also indicates. All the birds exhibited the characters of the western subspecies, as the eastern race *yatii* differs in having yellowish underparts (Summers-Smith 1988).

Females. Superficially resembled female House Sparrows but differed in being notably smaller and more delicate, with a rounder bill. The undertail-coverts (especially the outer feathers) were distinctly dark-spotted, a feature which is less prominent or absent in House Sparrow. There was also a difference in primary spacing: only four, evenly spaced, primary tips were

visible, giving the wing a short rounded appearance; House Sparrows in Bahrain have five or six visible primary tips, not evenly spaced, making the wing look longer.

Voice. There were two main calls: a short 'chilp' similar to House Sparrow, and a harder, more metallic 'tlip' virtually identical to Indian Silverbill *Euodice malabarica*. The latter call was usually given when the birds were flushed and flying away in tight flocks. When feeding, a buzzing 'tzzeeer' could occasionally be heard.

At Ghalali the birds were usually mixed in with the local House Sparrow flock, though at Badan and Hamalah farms they were mostly seen on their own, joining House Sparrows only occasionally. A winter-plumaged male Spanish Sparrow *P. hispaniolensis*, the first recorded in Bahrain, was accompanying the Hamalah flock in February. Both Shirihai (in press) and I. Andrews (pers. comm.) mention Spanish Sparrows accompanying Dead Sea Sparrows outside the breeding season in Israel and Jordan respectively. The Jubail flock did not mix with any of the other birds present nearby, which included House Sparrows.

The Dead Sea Sparrows in Bahrain preferred feeding on stubble fields, where the whole flock would advance with a rolling motion, birds at the rear continually hopping forward to take the lead (hence the difficulties of estimating exact numbers). When flushed—by humans, Sparrowhawks *Accipiter nisus* or once by a Montagu's Harrier *Circus macrourus*—they would gather in a tight flock, fly around for some while, and then take cover in tall, reed-like vegetation between the fields. Water was not present at either Hamalah or Badan farm though there were drainage ditches at Ghalali. Sewage was present in the grove at Riffa but the Dead Sea Sparrows there did not seem particularly attracted to it. Towards the end of February the Hamalah flock would split up into smaller groups and feed over a larger area of the farm.

The nominate subspecies of Dead Sea Sparrow breeds in south-east Turkey, Cyprus, the Levant, eastern Iraq, and south-west Iran; the eastern subspecies *yatii* is restricted as a breeder to Seistan on the border of Iran and Afghanistan (Summers-Smith 1988). The populations of Cyprus and (probably) Turkey seem to be largely migratory (Beaman 1986; Summers-Smith 1990; Flint and Stewart 1992), while Israeli birds seem to be partly resident and partly dispersive or migratory; migrants occur in Eilat between mid-October and the end of November (mainly from the end of October to the third week of November) and again, in spring, during mid-February to mid-April (mainly from the end of February to the last week of March) (Shirihai in press). There is only a little information on the movements of birds from Iraq and Seistan, but it does appear that they too migrate or disperse in winter (Cheesman 1919; Christison 1941; Allouse 1953; Marchant 1962; Hüe and Etchécopar 1971).

The timing of the Saudi and Bahraini records fits in well with the known migration pattern in Israel. The Saudi birds were clearly on migration and had been forced down by poor weather. The Bahraini birds must have been relatively newly arrived when they were discovered as the three main sites had been covered regularly and frequently during the previous period. The winter of 1991–2 was one of the coldest ever in the Arabian Gulf region, with a cold spell lasting for more than two months and heavy snowfalls and storms in the Levant and northern Saudi

Arabia. The increase of numbers in Bahrain during the winter (especially the build-up in March) and the late records on Das Island in UAE suggest that there was a weather-related dispersal among Dead Sea Sparrows and that they presumably penetrate down the Arabian Gulf in certain winters.

ACKNOWLEDGEMENTS

I would like to thank J. Denis Summers-Smith for drawing my attention to literature on the species, Colin Richardson for comments on other Arabian records, Ian and Jill Andrews for information on the species in Jordan, and Hadoram Shirihai for comments on Israeli status and for the photo.

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A record of Pale Rock Sparrow *Carpospiza brachydactyla* in Yemen

R. P. MORRIS

ON THE morning of 21 October 1992 I was birding alone, approximately 5 km east of Al Qutay on the eastern edge of the Tihamah in northern Yemen. The weather was still and humid and the temperature was about 25°C. The area was predominantly fields of sorghum and millet, with small areas of *Acacia* scrub and sandy/stony grassland. The area was excellent for west Palearctic migrants, and that morning I had seen Tawny Pipits *Anthus campestris*, Red-throated Pipits *A. cervinus*, 70 Yellow Wagtails *Motacilla flava*, several Rufous Bushchats *Cercotrichas*

galactotes, 2 Upcher's Warblers *Hippolais languida*, and 2 Masked Shrikes *Lanius nubicus*, along with the resident species.

As I was crossing a small scrubby area I heard a soft trill reminiscent of a distant Bee-eater *Merops apiaster*. I immediately recognized this as Pale Rock Sparrow *Carpospiza brachydactyla*, having become very familiar with the call in the United Arab Emirates earlier in the year. I quickly located the birds, a flock of 7, flying overhead. In flight the birds appeared stocky with long wings and short tails. They called regularly until they landed approximately 100 m in front of me, and as they did so I could clearly see white tips to the outer tail. I approached the birds to within 15 m where I took the following description.

Size. Approximately as sparrow *Passer*.

Head. Grey-brown with an indistinct off-white supercilium. Throat slightly paler, off-white. Some birds showed a clear grey-brown malar stripe and off-white submoustachial stripe, whereas on others these were very indistinct.

Upperparts. Unstreaked grey-brown above with two clear off-white wing-bars, on greater and median coverts. Tips of primaries also off-white, and this was regularly seen as the primaries extend well beyond the tertials. When the birds jumped or flew short distances white tips to the outer tail could clearly be seen; rest of tail same colour as upperparts.

Underparts. Featureless pale sandy-grey.

Bare parts. All birds showed pale grey bills and reddy-orange legs.

The birds moved around in an open sandy area within the scrub, feeding on seeds on the ground. They maintained a very horizontal stance, occasionally standing more upright as I approached them. They fed in this area for about 20 minutes before moving off to the north, and I later saw two birds in the area for which they had been heading.

Pale Rock Sparrow breeds mainly in south-east Turkey and Iran and its main wintering area seems to be eastern Sudan and eastern Ethiopia (Cramp and Perrins in prep.), with recent records also from Djibouti (Welch and Welch 1992). It is known to occur more or less regularly over most of Arabia except Yemen, chiefly as a passage migrant, but it is erratic in occurrence and can also be common as a winter visitor to the mountains of western Saudi Arabia where it is present from mid-October to mid-February (Jennings 1981; Stagg 1984). There are also proved or possible breeding records from Harrat al Harrah in north-west Saudi Arabia (Jennings *et al.* 1988), Dhofar in south-west Oman (Gallagher and Woodcock 1980), and the United Arab Emirates (Richardson 1990). In view of this it is somewhat surprising that there has been only one previous record of Pale Rock Sparrow in Yemen (in the former South Yemen): 3 birds approximately 50 km north-west of Aden at Habilayn (13°30′N 44°50′E) on 27 December 1965 (Latham 1967). Even so, as this record was accompanied by no supporting details of any kind, it is doubtfully acceptable as a first country record.

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First breeding records of Palm Dove *Streptopelia senegalensis* and Starling *Sturnus vulgaris* in Iraq

KHALID Y. AL-DABBAGH, SALAM M. MOHAMMED, and JAMIL H. JIAD

VERY LITTLE has been added to the knowledge of the status of Iraq's breeding birds since the work of Allouse (1960–2) who raised doubts regarding the status of many species. Two such were Palm Dove and Starling, but during two visits to Erbil in north of the country in April and May 1988 the breeding was established of both these species.

Palm Dove *Streptopelia senegalensis*

Allouse (1960–2) cited only two records of this bird's occurrence in Iraq, at Fao and Amara in the south, and Ticehurst *et al.* (1922) gave a record at Balad in central Iraq. In 1988, however, the species was discovered to be common and well established in the city of Erbil and surrounding villages, and several nests were found in April and May, mostly on ledges and roofs of buildings; one was in a small tree in the garden of a house. The nests were platforms of dry twigs with almost no lining and the clutch size was two. Allouse suggested that the birds recorded in southern Iraq were probably *cambayensis*, the Iran–India race, but the population in the north is likely to be the same race as that in southern Turkey and northern Syria which C. S. Roselaar (in Cramp 1985) believes to be identical to *phoenicophila*, the north-west African race, and therefore introduced. The range in Turkey is apparently expanding (Martins 1989).

Starling *Sturnus vulgaris*

The species is a very common winter visitor to Iraq. Flocks start arriving at the beginning of September, and during December numbers build up in open fields, cereal cultivations, and refuse tips near towns and villages. Birds start leaving at the end of March and none is left by the end of April. During April and May 1988 several nests were located on buildings in Erbil, mainly in the suburbs. All were in

deep holes, mostly below the edges of roofs. Hollom *et al.* (1988) mapped breeding in northern Iraq, but there was no previous proof of this, though, with the range covering adjacent Turkey and Iran, it was to be expected, and earlier observations had hinted at it. Thus Sassi (1912) listed a bird (said possibly, however, to be *poltaratskyi*, the Siberian race) collected at Mosul in the north on 30 May 1910 and a juvenile (race undetermined) from there on 23 May 1910. Allouse (1960–2) also noted a juvenile collected at Mosul in May 1956. Meinertzhagen (1924) shot seven birds in the centre of Mosul in December 1922 which were 'obviously the resident bird, as they were constantly in and out of drain-pipes, chimneys, etc., and roosted on verandahs. They were not in flocks, but in small family-parties.' He thought these probably *nobilior*, but if so they were probably not breeding, as this is the race of Afghanistan and north-west Iran; *nobilior* is, however, very similar to *caucasicus* of the Caspian region and Iran, and either this race or *purpurascens* of the Caucasus and eastern Turkey seems more likely to be the resident one (Vaurie 1959).

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First records of Yellow-vented Bulbul *Pycnonotus xanthopygos* in Iraq

S. A. RASMUSSEN

ON 9 September 1983 I spent the day at my firm's guesthouse in Baghdad, and during the afternoon saw (without binoculars) my first White-cheeked Bulbuls *P. leucogenys*—a pair foraging on yellow dates in the garden. Present with them were several other bulbuls, of about the same size, which had the entire head and

throat blackish-brown, with no white colour at all; their tails were black and underparts light grey. Not being sure which species to expect there, I first assumed these other birds to be Common Bulbuls *P. barbatus*, so was astonished by the spectacular bright yellow under tail-coverts which they shared with the White-cheeked Bulbuls. The dark-headed birds were mobbed by the White-cheeked Bulbuls from time to time. After consulting Fitter *et al.* (1972) I was in no doubt that the garden was visited by Yellow-vented Bulbuls *Pycnonotus xanthopygos* as well as by White-cheeked. I also spent the second week of November in Baghdad, but, though White-cheeked Bulbuls seemed very common, I saw no Yellow-vented Bulbuls. I had seen Common Bulbuls previously in East Africa and have subsequently seen Yellow-vented Bulbuls in Israel.

During most of my three months in Iraq I lived in a camp near a big chemical plant at Al Qaim 450 km north-west of Baghdad, close to the Euphrates and about 15 km from the Syrian border (Rasmussen in press). Early in the morning of 7 October 1983 I observed 3 Yellow-vented Bulbuls in a tree just outside my house there, the only bulbuls I saw at Al Qaim.

These are the first records of Yellow-vented Bulbul from Iraq. The only previous suggestion of its occurrence in the country is a reference by Ticehurst *et al.* (1922) to a bird at Feluja near Baghdad on 25 May (the year is not given) which was poorly described but thought possibly to be this species. Yellow-vented Bulbul is considered to be sedentary and the nearest known regular breeding area to Al Qaim is about 400 km away in south-central Turkey (Cramp 1988), but the Euphrates valley through Syria would form an obvious corridor for dispersal—or may even hold a breeding population. I believe there to have been no captive birds of any sort at Al Qaim, so the record from this site seems very unlikely to result from escapes, and K. Y. Al-Dabbagh (*in litt.*) has never seen Yellow-vented Bulbul offered for sale on his regular visits to the Baghdad bird market. Juvenile White-cheeked Bulbuls are a potential confusion and could have been present at the time of the Baghdad observation as post-juvenile moult is not completed until September–November (Cramp 1988). D. J. Brooks has, however, examined skins of White-cheeked juveniles in the British Museum (Natural History) and found that while they do show buffish cheeks, duller than adults, the cheek does still form a strongly contrasting whitish patch; juveniles also have the under tail-coverts a paler more washed out yellow than adults.

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A freshwater breeding record of Greater Flamingo *Phoenicopterus ruber* in Turkey

GUY KIRWAN

GREATER FLAMINGO *Phoenicopterus ruber* is known only as an irregular breeding species in Turkey (OST 1969, 1972, 1975, 1978; Kiliç 1988). Although the erratic occupancy of nesting areas is an established feature of the species' biology in other parts of its range, its perceived status in Turkey is probably due more to the inaccessibility of the known sites (especially the most important, Tuz Gölü) than to genuine scarcity of breeding: only Çamalti Tuzlasi allows any ease of access, while of the others the huge saltpan systems of Karapinar Ovasi and Tuz Gölü are conveniently counted only from the air and the extensive freshwater marsh at Eregli is best visited by boat. At present, only Çamalti Tuzlasi and Tuz Gölü are known regularly to hold breeding flamingos, while breeding has been recorded once, in 1971, at the Sultan marshes (Kasparek 1985) and there is a record of a colony at Karapinar Ovasi in 1977 (Kiliç 1988). In October 1970 Ozer found nests at Seyfe Gölü (Husband and Kasparek 1984), and local people claimed that flamingos bred there that year, but this was not fully proven.

The summary of breeding records by Kiliç (1988), Kiliç and Kasparek (1990), and Johnson (1991) includes the first indication of nesting at the Eregli marshes in 1987, when nests were found, though these were possibly old. Consequently the first proven breeding at Eregli was recorded on 1 June 1991 when Gernant Magnin and I visited the central section of the marsh by boat and located three islands, within 200 m of one another, with nests. A total of 1,100 birds was present in the lagoon containing the islands, about 200 around island 1 (see below) and the remainder in a large flock in the centre of the lagoon. The birds were flushed as we approached, those around island 1 leaving last.

Island 1. Rather elongated, 20×2–5 m; mud with a few broken reeds *Phragmites* at one end; 139 nests plus another 10 which were perhaps unfinished; 68 nests had one egg and several tested were warm; there were many fresh flamingo feathers on the island.

Island 2. Twice the size of island 1, central part extensively overgrown with *Phragmites*; 30 apparently unfinished nests, none with eggs.

Island 3. Rather elliptical, *c.* 18×9 m; bare mud; 48 nests, none with eggs, though all appeared relatively new and some contained small scraps of vegetation in the cup; many fresh flamingo feathers on the island.

The birds had flown out of sight during our inspection of the islands, but started to return as soon as we left the area. Unfortunately, the evidence from an aerial survey subsequently undertaken by DHKD (Society for the Protection of Nature) suggests that the birds did eventually abandon the colony.

The Eregli marshes form a large playa wetland in the Konya Ovasi on the Turkish central plateau. The water of all such areas becomes increasingly saline, and the northern and eastern sections of the wetland now contain a large brackish lake. Large parts, however, including the lagoon described above, are still essentially freshwater in nature, being dominated by typical *Phragmites* reedbeds (Kiliç and Kasparek 1990). This observation thus constitutes the first breeding record of Greater

Plate 1. Nests of Greater Flamingos *Phoenicopterus ruber* in the Eregli marshes (Turkey), June 1991. (*Gernant Magnin*)

Flamingo at a freshwater site in Turkey and apparently anywhere in the world (A. R. Johnson pers. comm.). It should be borne in mind, however, that some of the nests could have survived from the previous breeding season, although this is unlikely in the severe winters which occur here, and all nests looked fresh. Note also that the species occasionally builds nests and lays eggs without hatching them, this being a feature of young birds, perhaps one-year-olds (A. R. Johnson pers. comm.).

Perhaps because of its omission from the last two Turkey Bird Reports (Beaman 1986; Martins 1989), many observers remain unaware of Greater Flamingo's exact status in the country, and valuable and interesting records may thus have been lost. The species well may be a more common breeding species than is thought, and all records from known or as-yet undocumented breeding areas are required. These should be sent to Alan R. Johnson, Station Biologique de la Tour du Valat, Le Sambuc, 13200 Arles, France.

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Possible hybrid Pied × Black-eared Wheatear *Oenanthe pleschanka* × *O. hispanica* in eastern Turkey

MAGNUS ULLMAN

ON 15 MAY 1990 I was birdwatching with a Swedish group on the slopes just north-east of Van in eastern Turkey. Here we saw several Black-eared Wheatears *Oenanthe hispanica melanoleuca* and just managed to get a glimpse of a single Finsch's Wheatear *O. finschii*. While scrutinizing the wheatears I noted a peculiar specimen, obviously an adult male, which looked like a typical black-throated Black-eared Wheatear with the exception of the mantle which was entirely black but for a few worn off-white fringes (Figure 1). At the time of observation we considered this to be an aberrant black-backed Black-eared Wheatear: confusion with Pied Wheatear was not a problem, since (1) Black-eared is common in the area, while Pied does not normally occur, and (2) the black of the throat was separated from the black of the scapulars, as is typical in Black-eared.

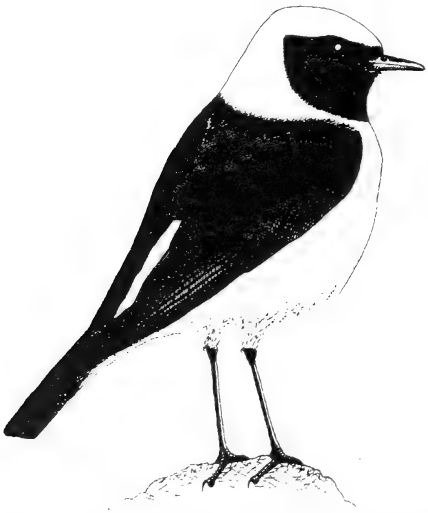

Figure 1. Adult male wheatear, possibly hybrid Pied × Black-eared Wheatear *Oenanthe pleschanka* × *O. hispanica*, Van (Turkey), 15 May 1990; precise amount of black above the bill was not recorded. (*Magnus Ullman*)

On reflection, however, it is perhaps more likely that this was a hybrid Pied × Black-eared *O. pleschanka* × *O. hispanica*. The two species replace each other geographically and hybridize commonly but locally in four restricted areas of overlap in eastern Bulgaria, Transcaucasia, the eastern shore of the Caspian, and the Elburz mountains of northern Iran (Haffer 1987). For example, in two areas of the east Caspian Panov (1986) reported 32·3% and 48·6% of males as having characters intermediate between the two species. It must be possible that our bird was a migrant to one of the known hybridization zones, but its origin may have been more local, for in July 1990 a pair of Pied Wheatears with three young juveniles was found at Van reservoir (*Birding World* 1990, 3: 307), which is actually very close to the site where our observation was made. If Pied Wheatear occurs, and breeds, in the area the possibility of hybridization is presumably rather high, considering the high incidence in zones where these two species meet.

Haffer (1987), in his study of hybrid Pied × Black-eared plumages in northern Iran, recognized the combination of characters we saw as part of his classification of the range of hybrid plumages, but he never saw such a bird during his fieldwork and knew it from only a single specimen—a migrant collected in south-west

Iran on 9 March 1941. Haffer did not, however, describe pale fringes to the mantle: these might be seen as a feature resulting purely from Pied Wheatear parentage, since male Pied has an extensively fringed mantle during autumn and winter, but it would be extraordinary for an adult male Pied to have pale fringes as late as May. Perhaps it is more plausible that the fringes represent 'what is left' of a Black-eared's white mantle. It should be noted that apart from the pale fringes the mantle was jet-black.

I have noted that male Black-eared Wheatears of the eastern subspecies *melanoleuca* have on average slightly more black above the base of the bill than Pied. It would have been interesting to check this on the Van individual, but unfortunately this was not done.

A bird with this plumage might be mistaken for a Pied Wheatear or a Mourning Wheatear *O. lugens*, although the restricted throat-patch and the gap between it and the scapulars should prevent misidentification. Mourning Wheatear would also show a yellowish-rusty tinge on the undertail-coverts and more black in the tail when spread.

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My thanks to Per Alström for giving me one of the references on hybridization.

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First breeding record of Pallid Swift *Apus pallidus* in Qatar

R. NATION

ON 29 March 1990 in Qatar two acquaintances pointed out to me a hole in a vertical cliff face about 2 m below the top where we were standing. We could clearly hear a continuous cheeping, presumably of young birds. An adult bird had flown out of the hole shortly before my arrival, and I identified this as one of several Pallid Swifts *Apus pallidus* flying in the immediate area. There were no other similar species in the area that afternoon. It may just be possible that the calling was from two adults together in the hole, but Cramp (1985) did not describe any calls of this type from adults at the nest for Pallid Swift or Swift *A. apus*.

The site is on the eroded limestone plateau which forms the northern part of the Al Abruq peninsula on the west coast of Qatar. Vegetation is very sparse near the cliff, but the site is within a few hundred metres of a grove of *Acacia* and *Lycium*

trees where up to eight swifts had been observed on three weekends since 2 March. The cliffs are about 8 m high, generally smooth-faced but with a few small crevices; I searched the nearby area but found no evidence of other nesting activity. One month later I visited the site again: there were Pallid Swifts at the grove and two or three flying near the nest site, but none was seen to enter the hole, though I kept watch for more than an hour as dusk fell.

There had been an unusual amount of rain in the previous four months, and there was an abundant growth of vegetation and consequent increase in insect life in the acacia grove and in other depressions in the desert. In the following two years the area was much drier, with much less birdlife: only one swift was observed in three spring visits in 1991 and only two in 1992. It may be that there has been breeding in wet years in this or similar nearby areas, as past observers do not seem to have focused on this corner of the country.

Pallid Swifts are known to breed in coastal areas of eastern Saudi Arabia and the United Arab Emirates and in Bahrain (*per* M. C. Jennings), but this appears to be the first record for the Qatar peninsula. Birds attend colonies in eastern Saudi Arabia from March (Bundy *et al.* 1989), but breeding is apparently earlier to the south: mainly December–March in UAE (Richardson 1990) and from January or February in Oman (Gallagher and Woodcock 1980).

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R. Nation, ICS Department, Qatar General Petroleum Corporation, PO Box 3212, Doha, Qatar.

CORRECTIONS

Sandgrouse 13

Page 25, penultimate line. Amend to read: 'their breeding ranges, and on the wintering grounds in an area extending . . .'

Page 75, line 4 from below. In fact Umrikhina (1970) reported that only females (not males) built nests (per B. Hillcoat, M. G. Wilson).

Page 76, Table 2. Delete 3rd line of data (Width of cup . . .) and substitute:

Inner diameter of cup	52·3±6·1	53·3±5·1

Page 77, Table 3. Frequency of 4-egg clutches in 1st broods should be 6 (not 1).

GUIDELINES FOR AUTHORS

The Editorial Committee of *Sandgrouse* will consider for publication original papers which contribute to the body of knowledge on the birds of the Middle East—their distribution, breeding biology, behaviour, identification, conservation, etc. The Middle East for this purpose includes Turkey, Cyprus, and Libya in the west to Afghanistan and the Palearctic fringe of Pakistan in the east, the southern shores of the Black and Caspian Seas in the north, and the Arabian peninsula and the Palearctic limits in Sudan and Ethiopia in the south. Submissions are considered on the understanding that the work has not been previously published and is not being offered for publication elsewhere.

Papers should normally be in English, but non-English-speaking authors who are unable to obtain translations of their work may apply to the Editor for help. Submissions should be typed (unless very short), on A4 paper or near equivalent (not foolscap, and not wider than 22 cm), *double*-spaced (not 1½-spaced), unjustified (ragged right), with two wide margins, and on one side of the paper only; two copies are required (or only one if a disk is supplied as well—see below), one of which should be the original. Authors should consult this issue of *Sandgrouse* and follow conventions for layout, headings, tables, captions, references, abbreviations, etc. Full-length papers must include a factual summary not exceeding five per cent of the length of the text. Scientific names and sequence of bird species should follow Voous, K. H. (1977) *List of Recent Holarctic Bird Species*.

Figures should be drawn *without any lettering* in black ink on good-quality white or translucent paper. The *original* artwork must be supplied, plus one copy with rough lettering in place; the text of lettering should also be supplied on a separate sheet of paper (and on disk if possible; see below). In preparing figures authors should have regard to the page size and format of *Sandgrouse*. Figures will ideally be drawn about 50 per cent larger than final size; if they are much larger than this care should be taken to avoid use of fine detail that will be lost in reduction. Areas of fine Letraset tint should be avoided and uniform half tones (e.g. pencil shading) are not usually acceptable.

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